

▶ Efficient room control ▶▶

AIRCONTROL





Efficient room control with X-AIRCONTROL

Increasingly demanding requirements on energy efficiency as well as the latest EU regulations have created a need for intelligent control engineering solutions in room air conditioning.

TROX has combined its know-how from all divisions of air distribution technology and developed an energy-efficient overall system. The integration of the X-CUBE air handling unit, volume flow controllers, heating and cooling components, and air-water systems into an overall system offers huge economic and ecological benefits.

Up with comfort, down with costs

The system's main focus is on the individual, demand-based control of air volume flow rate and water circulation for a room. Measuring and evaluating the temperature, air quality, humidity level and occupancy not only improve air quality and comfort in a zone, but also drive costs down.

What is more, all data points in the system are matched, thereby significantly reducing the coordination effort between the various trades. This saves installation time and, even more important, costs. Communication between the X-AIRCONTROL and the central BMS is possible via the common bus systems BACnet/IP and Modbus/IP.

X-AIRCONTROL – The benefits

- Individual room control
- AHU operation is optimised based on ventilation and air conditioning parameters
 - Fan speed control based on the damper blade position of VAV terminal units
 - Demand-based control of the recirculation damper depending on the air quality
 - Centralised air conditioning (heating/cooling) based on actual room temperatures
- Centralised alarm management and display of actual operating values
- Cost optimisation due to reduced number of data points
- Easy commissioning



▶ System components ▶▶



X-AIRCONTROL zone module



VAV terminal unit



DID active chilled beam



Control panel 2" touch display



Temperature and humidity sensor



VOC air quality sensor

Zone modules

X-AIRCONTROL zone modules combine information from humidity, air quality (VOC), temperature and PIR sensors and ensure the perfect interaction of all air handling components in a room. The system recognises all digital sensors automatically and uses measured values to initiate control procedures.

No matter what type of system is installed, a ventilation system only or a combination with air-water components such as TROX DID, X-AIRCONTROL will always ensure the control optimum. Yet the system does not require any programming by users.

The zone modules are available in three variants to meet different requirements and be ideally adapted to existing components, such as VAV terminal units or valves. The digital variants provide maximum data transparency; for example, they signal damper blade positions to the fans for optimised fan speed control.

- Zone module Modbus RTU
 - Modbus interface for peripheral components
 - Easy connection for voltage supply to and communication with the TROX Compact controllers with control component BMO-J6
- Zone module MP-Bus
 - MP bus interface for peripheral components
 - For example, for the integration of TROX Compact controllers with control component BCO
- Zone module Analogue
 - 0 – 10 V interface for peripheral components
 - For example, for the integration of TROX Easy controllers or motorised CAV controllers of Type RN, EN or VFC

Zone master modules

The X-AIRCONTROL zone master modules allow for expanding the system and provide interfaces to the central BMS and for remote maintenance.

- TCP/IP interface to PC networks and WiFi routers
- BACnet/IP
- Modbus/IP

► Single room control ►►

Stand-alone solution for a zone

A single zone module and a room control panel can be used to control a single room.

- Volume flow control with up to 2 supply air controllers and 1 extract air controller
- Control signal for heating and cooling units for room temperature control
- Control panel for setting zone parameters and for temperature recording
- Timer programmes independent of the central BMS
- Simple wiring
- Plug and play connection of components

Automatic integration of additional information from optional sensors

- Room occupancy
- Air quality
- Humidity



Plug and play connection of components



► Controlling several rooms ►►



Interconnecting zones for multi zone operation

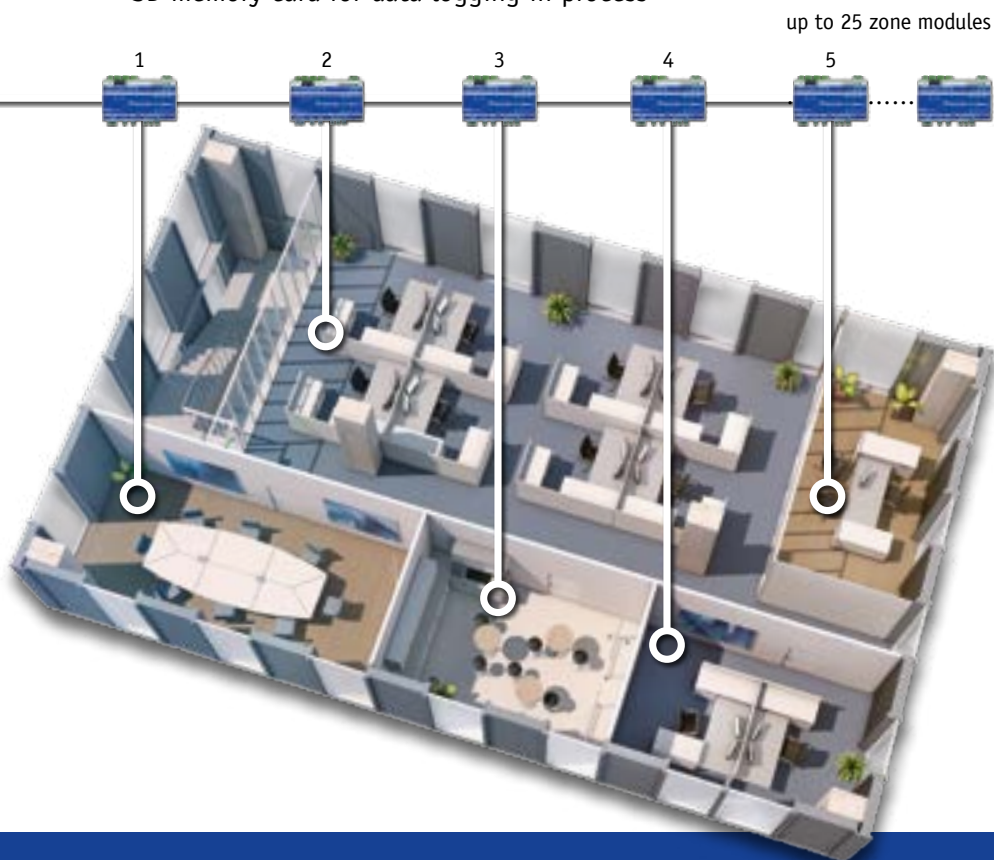
An X-AIRCONTROL zone master can link up to 25 zones. And by adding up to four more master modules, you can expand the system to a total of 125 zones. All zone module variants can be combined as required and simply linked by plug and play.

- Up to 5 X-AIRCONTROL zone master
- Up to 25 X-AIRCONTROL zone modules per zone master
- Up to 125 X-AIRCONTROL zone modules within a network

Modules are connected in series, with a 100 m cable between each two; this means that even large areas in a building can be covered. Each zone master and each zone module is automatically assigned its own address, which facilitates creating a system network enormously. Each zone module controls and maintains individually the required conditions for the particular room for which it is used.

X-AIRCONTROL zone master – The advantages

- Central access for displaying and setting individual zone parameters using the integral webserver
- Ethernet connection allows for easy integration with the central BMS and for remote maintenance via the internet
- Option to connect a WiFi router (WLAN)
- Option to update the system using an SD memory card
- SD memory card for data logging in process



► Parameter setting and monitoring ►►

Convenient configuration using a webserver

Using a WiFi router makes configuring the X-AIRCONTROL zone master and zone modules as well as displaying information a convenient affair. Notebooks, tablets or smartphones – the user interface of X-AIRCONTROL has been optimised for mobile devices, offers intuitive navigation and shows all setpoint and actual values at a glance.

Monitoring the relevant parameters and adjusting them is, hence, easy. It is immediately obvious whether all systems are working normally or if an error requires your intervention. You can select each zone individually for configuration or to adapt it to changing conditions.

Advantages

- Wireless operation with optional WiFi router
- Intuitive GUI with internet browser (optimised for mobile devices)
- All relevant setpoint and actual values are available at a glance



Z01 Office 053 Zone 1 Section 1	
Air Mode	Auto
Low Air Flow	20.0 %
High Air Flow	90.0 %
Override Timeout	60 min.
Menu Show	Show
Password	1234
Actual	24.3 °C
Setpoint	21.0 °C
Actual Setpoint	21.0 °C
PI Reg P-Band	10.0 °C
PI Reg I-Time VAV	10 s
PI Reg I-Time Cool	700 s
PI Reg I-Time Heat	20 s
Actual	54.1 % RH
Setpoint	45.0 % RH
PI Reg P-Band	10.0 % RH
PI Reg I-Time	10 s
Setpoint	100.0 %
Setpoint	34 m3/h
Actual Position	100.0 %
Actual Position	94 °
Actual Flow	0.0 %

Actual Flow	0 m3/h
Nominal Flow	100 m3/h
Min. Air Flow	21 m3/h
Max. Air Flow	34 m3/h
Override	0.0 % Enable
Testrun	Start
Adaption	Start
-- more --	
Setpoint	100.0 %
Setpoint	34 m3/h
Actual Position	100.0 %
Actual Position	94 °
Actual Flow	0.0 %
Actual Flow	0 m3/h
Nominal Flow	100 m3/h
Min. Air Flow	21 m3/h
Max. Air Flow	34 m3/h
Override	0.0 % Enable
Testrun	Start
Adaption	Start
-- more --	
Actual	Not Active
Supply Min. Air Flow	20 m3/h
Actual	Closed
Setpoint	0.0 %
Override	0.0 % Enable
Testrun	Start
Setpoint	100.0 %
Override	0.0 % Enable
Testrun	Start

Save Copy

Zone information overview

► X-CUBE compact with integral zone master ►►



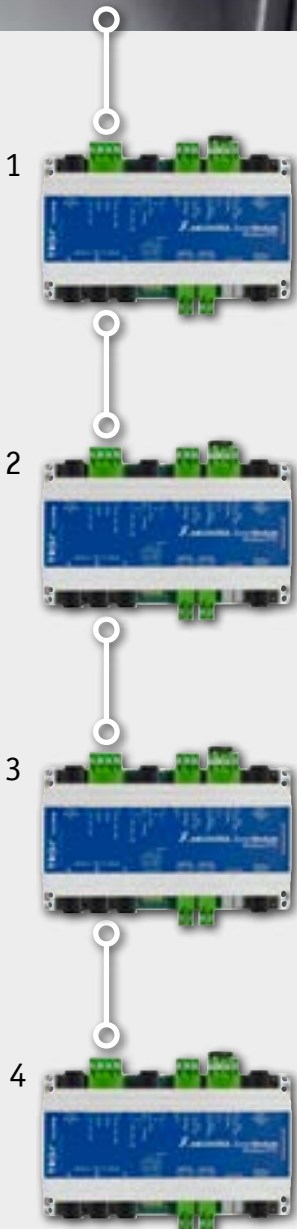
The simple solution for small projects

For smaller projects, i.e. if you want to control only few zones, the ideal solution is to combine X-AIRCONTROL with the X-CUBE compact air handling unit.

The X-CUBE compact's integral control not only provides the control signal to the fan, the dampers and other peripheral components of the compact air handling unit, but also functions as an X-AIRCONTROL zone master. The zone master function of the X-CUBE compact unit allows for integrating up to four X-AIRCONTROL zone modules and hence to individually control the corresponding zones.

The Ethernet interface of X-CUBE control allows you to access both the configuration of the compact unit and the configuration of the X-AIRCONTROL zones by simply using a webserver.

- X-AIRCONTROL zone master function is included in X-CUBE control
- Up to 4 zone modules of any type can be connected
- Configuration is done using the integral webserver
- Remote maintenance is possible



X-CUBE compact

Top performance, small size
- Volume flow rates of 600 to 6,000 m³/h
- Maximum energy efficiency

► X-CUBE with integral zone master ►►

From the air handling unit into the zones

When X-AIRCONTROL is used with an X-CUBE air handling unit, X-CUBE control can assume the function of an X-AIRCONTROL zone master without any extra programming being necessary.

X-CUBE control is the centrepiece of the system, with the following features:

- Control of the X-CUBE
- Monitoring of duct smoke detectors and motorised fire dampers (up to 62 fire dampers can be integrated through AS-i)
- Coordination and logging of maintenance runs for fire dampers
- Zone master function for up to 25 zone modules

You may use the touch screen display on the X-CUBE to display the unit parameters, the room automation parameters, data for fire dampers linked by TROXNETCOM, and alarm and maintenance data. Since the X-CUBE is already equipped with an integral webserver, you may access the system from anywhere with the correct password.

- Remote access via webserver
- Display of actual operating values
- Adjustment of operating parameters
- Maintenance management
- Alarm alert by e-mail or SMS

AIRCONTROL



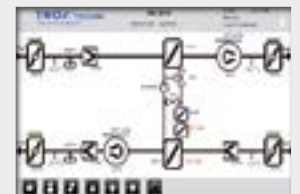
TROXNETCOM



LABCONTROL



CUBE control

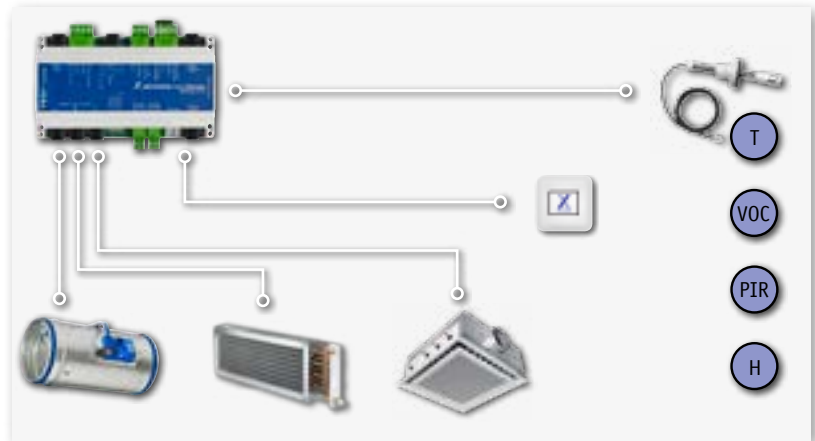


X-CUBE

► Solution overview ►►

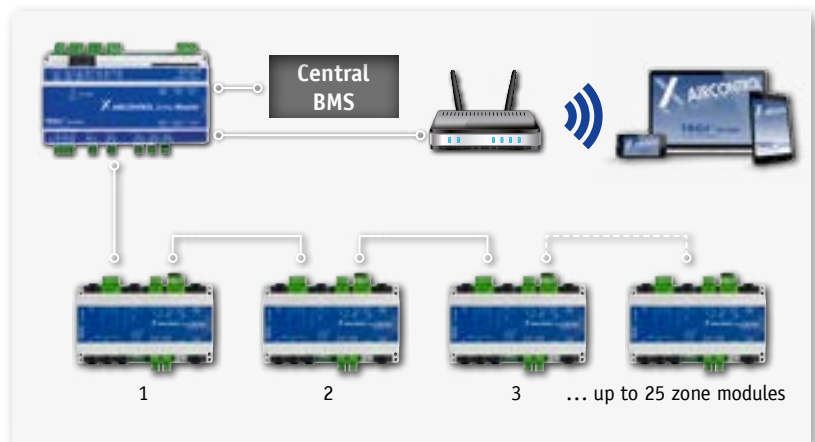
Single room control

- No zone master required
- Room control panel for setting and displaying values
- Individual single room control:
 - Timer programmes
 - Temperature control
 - Occupancy sensors (optional)
 - Control based on VOC, humidity (optional)



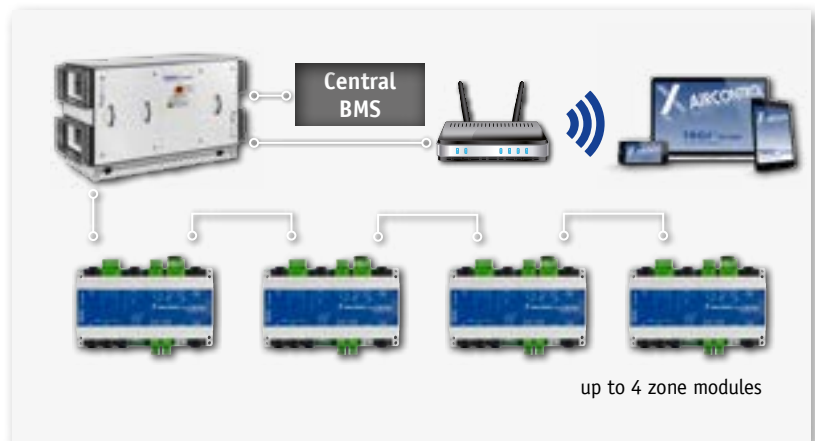
Control of several rooms

- Integration of up to 25 zones per zone master
- Cascade function for up to 5 zone master
- Optional room control panel
- Individual single room control as well as individual sensor and unit configuration



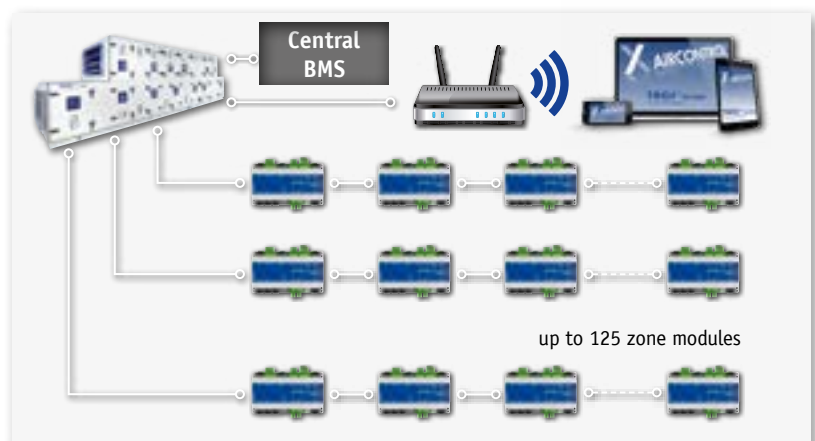
Control of up to 4 rooms with an X-CUBE compact

- Zone master function is included in X-CUBE control
- Room control panels are optional
- Individual single room control as well as individual sensor and unit configuration



Control for an entire building with an X-CUBE

- Zone master function is included in X-CUBE control
- Up to 125 zones can be linked with expansion modules for X-CUBE control
- Room control panels are optional
- Individual single room control as well as individual sensor and unit configuration



► Intelligence built into the system ►►

X-AIRCONTROL – The complete solution

Up to 125 separate rooms or zones per system can be configured individually and based on demand. Special operating modes for fire protection and smoke extract, or timer programmes in automatic operation, are considered.

The X-AIRCONTROL zone modules facilitate installation and eliminate errors, for example by providing plug and play connections and additional integral power supply for the VAV terminal units.

TROX consistently combines the know-how of individual areas of application into an overall system. All components of X-CUBE and X-CUBE compact, fire protection with TROXNETCOM, and LABCONTROL can be integrated more effectively with the new X-AIRCONTROL control system.

Saving costs with X-AIRCONTROL is easy

- Reduction of operating and commissioning costs
- Reduction of data point costs to the minimum (only BMS connection)
- Clear responsibilities
- Fewer interfaces
- Plug and play expansion is possible
- All subsystems ideally complement each other





TROX[®] TECHNIK

The art of handling air

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