

# Smart Savings with Room Control

KNOW  
HOW  
CREATES

HVAC  
CONTROLS & DRIVES

**OJ GreenZone®**

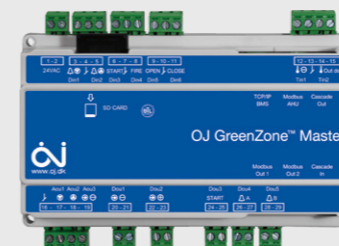
Zone control for VAV systems



## OJ GreenZone®

Full individual control of up to 125 individual rooms or zones for each AHU. Air quality and temperatures are automatically regulated to match your comfort requirements. And major energy savings – up to 65% – translate directly into money in the bank for building owners.

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### OJ GreenZone® master

The Master optimises and monitor the over-all system operation. It can be accessed and operated via the built-in web server, by connecting it to a Building Management System (BMS), or via a smartphone/tablet/laptop.



### OJ GreenZone® modules

Available in three different versions to suit your system needs, the modules adjust VAV damper operation and temperature to bring you dual benefits: greater comfort and greater savings.



### Touch screen room panel

The room panel allows users to adjust fan speed and temperature within parameters set by you.

### System thinking at its best

For four decades OJ Electronics has been in the business of making HVAC systems more efficient and easier to install and operate. The OJ GreenZone® is a perfect example of the OJ approach to system thinking: we offer a combination of master controls, modules and room panels that gives you complete control of each individual room or zone in your building's VAV system – whether that system is based on air handling units fitted with controls from OJ or from another manufacturer.

The result? Full individual control of up to 125 individual rooms or zones for each AHU. Air quality and temperatures are automatically regulated to match your comfort requirements. And major energy savings – up to 65% – translate directly into money in the bank for building owners.

### Taking VAV systems to new levels

The OJ GreenZone® system has seen OJ venture into new territory: individual VAV zone control. HVAC solutions have been a core aspect of OJ for decades, and with the OJ GreenZone® system we have combined our decades of application experience with the most recent research on how to make VAV systems as energy-efficient as possible. Creative touches include a unique beeper function that makes it easy for service staff to locate modules hidden behind ceiling tiles – and of course you can use your latest device to control your OJ GreenZone® system.

### Zone control made simple

The OJ approach to zone control centres involves three components: master units, zone modules and room panels. Zone modules and room panels can be used together as stand-alone solutions, while the use of one or more masters ensures maximum energy efficiency in large buildings.



### Plug & Play technology

The OJ GreenZone® is quite literally a plug & play solution: the QuickPlug™ Modbus connection eliminates the risk of installation errors commonly seen in less sophisticated systems, and the entire system configures itself. For example, the Master automatically assigns addresses to each module.



### Energy savings

Energy efficiency is about more than money – it is about supporting sustainable development. And sustainability is also about feasibility. The OJ GreenZone® system reflects this: it can reduce ventilation-related energy consumption in buildings by up to 65%, making a very real contribution to energy conservation while also saving money.



### Reliable solution

The OJ GreenZone® is exactly the kind of solution you expect from OJ Electronics: designed and manufactured with great care. Handling it is so simple – and all components are so sturdy – that you will barely notice your OJ GreenZone® system in day-to-day operation. Just the comfort and the savings it brings.

# How OJ GreenZone® Fits Your Project

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Room comfort

Damper position approach

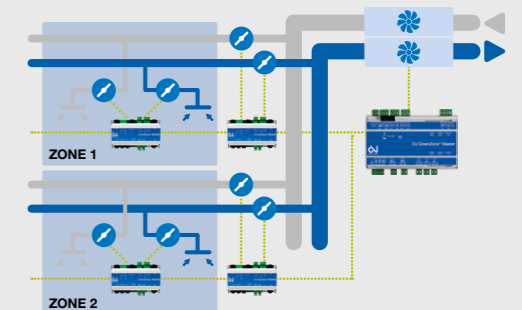
Branch dampers

Common extract

Constant pressure

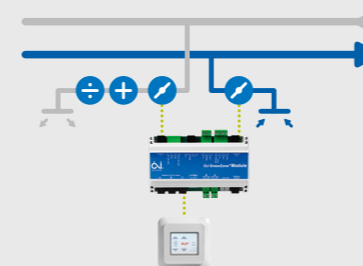
## Branch dampers

Digital VAV dampers can be configured as branch dampers that optimise branch pressure, energy consumption and noise. Each Master can control up to 2 x 5 branch dampers.



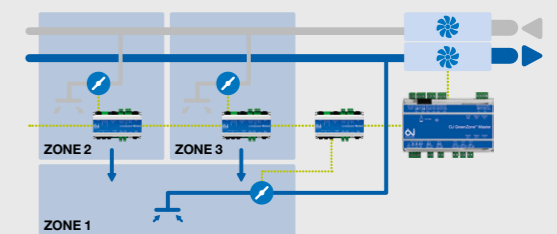
## Room comfort

Use an optional room panel to adjust indoor climate in a single room – based on sensor input.



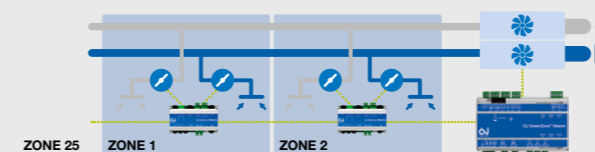
## Common extract

Connect zone modules to digital VAV dampers and let the Master provide balanced ventilation at all times. Each Master can control up to five common extract ducts.



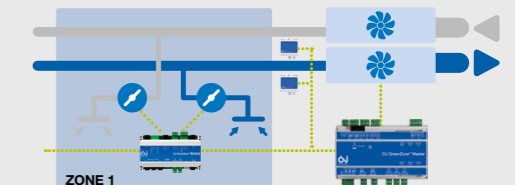
## Damper position approach

Connect zone modules to digital VAV dampers – and let the Master regulate supply and return fan speeds for minimal pressure loss and maximum energy efficiency.



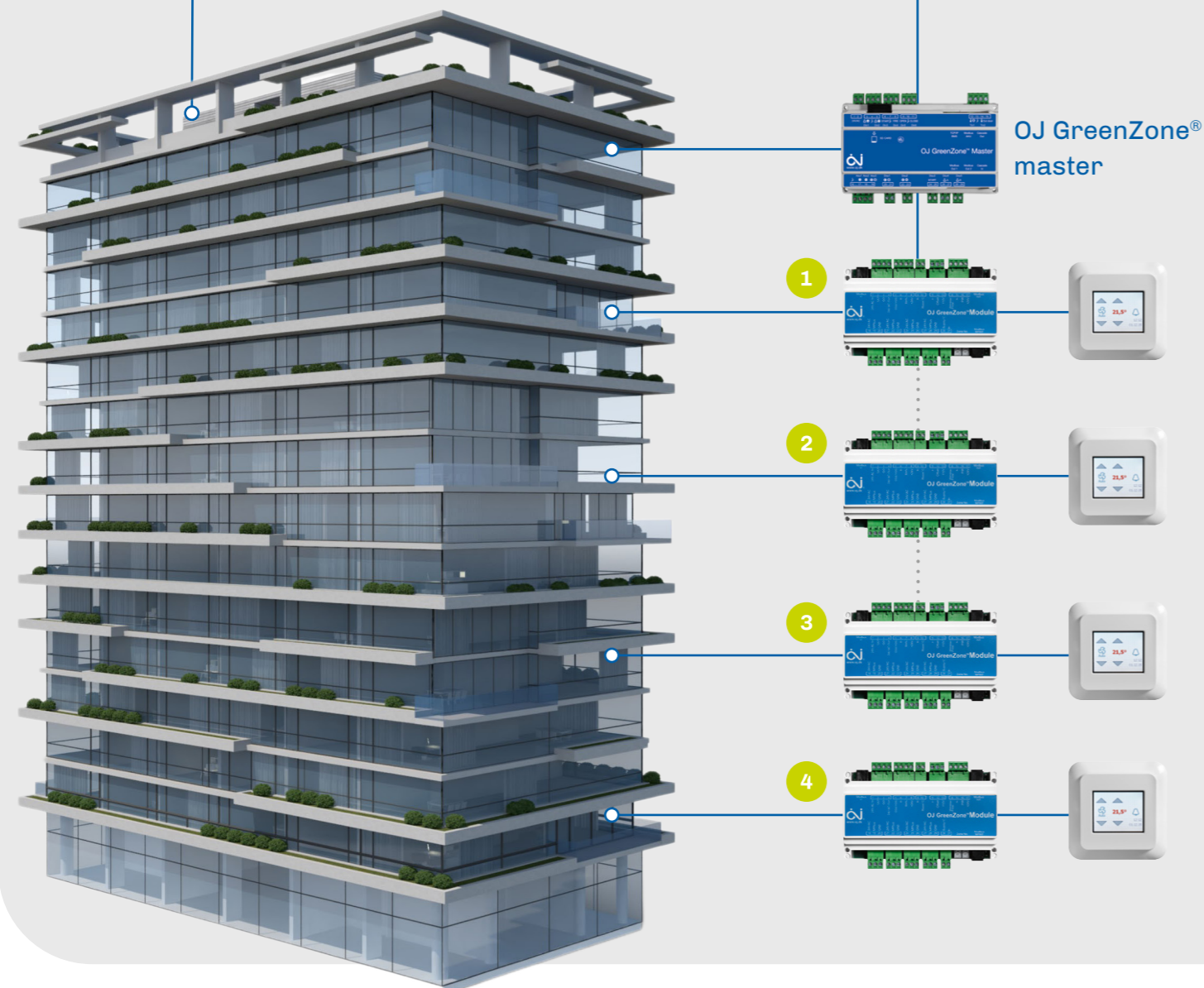
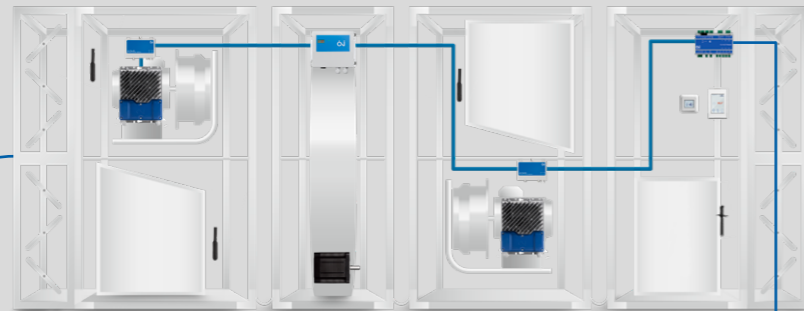
## Constant pressure

Use OJ Zone Module-A and PTH pressure transmitters to ensure constant duct pressure. The result: Lower air volumes, lower energy costs – and protection against excessive or insufficient pressure.



## KNOW HOW CREATES

AHU with OJ Air controls



# The Choice Is Yours

Indoor climate control the way you want it

## System performance as required

Commonly, a project might require different solutions for different rooms. With OJ GreenZone, you can base local room climate control on temperature, CO2, VOC and/or humidity sensor inputs. You can choose simple or

high-performance duct terminal units. You can select the space heating system that you want to use. The control features you need are pre-programmed and ready to use out of the box.

### 1. Supply air cooling and heating

Chilled supply air from the Air Handling Unit is used for space cooling. Use a local duct heater, radiator or floor heating for space heating.

### 3. Climate beam and heating

Local climate beams supplied by water sources can be used for space cooling and heating. It can be combined with radiators or floor heating.

### 2. Chilled beam and heating

Space cooling power from local chilled beams supplied from a chilled water source. It can be combined with supply air cooling.

### 4. Duct heaters

Duct heaters can be powered by electricity or a water source. The types can be combined into two heating stages.



## Pre-installed software – easy updating

The software controlling the zone modules is stored in the Master unit. All modules in the network can be easily updated by replacing the SD memory card.

## Control in the palm of your hand

You can adjust, monitor, and control wherever you are, whenever you want.

Thanks to WiFi connectivity, all modules can be operated via your smartphone, tablet or laptop/PC.



# Fast installation

## Just Plug & Play

Installation is a simple matter of plug & play: the combination of QuickPlug™ Modbus and built-in software ensures that OJ GreenZone® saves valuable installation time.

## Simple configuration

The OJ GreenZone® configures itself automatically: the Master automatically assigns addresses to each zone module. This eliminates the need for complicated DIP switches – as well as the risk of blocking the network due to random address conflicts.



QuickPlug™ Modbus

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## No programming necessary

Installers simply plug in the components and fine-tune the settings. Each room or zone can be configured to ensure ideal climate and operation – and a single OJ GreenZone® solution can handle up to 125 individual zones.

# Up to 65% Energy Savings

## Optimised for efficient performance

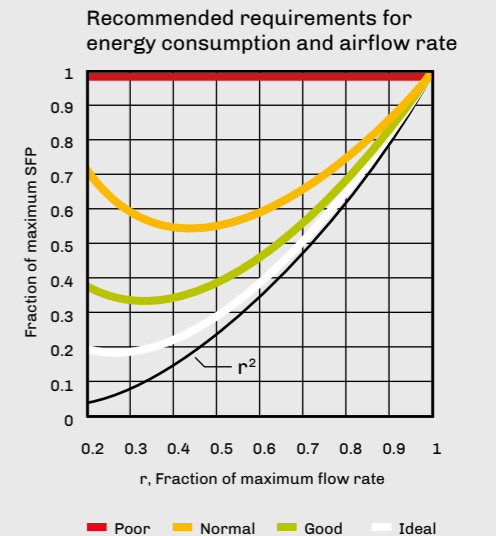
Enhanced AHU control and optimised temperature, air and water flow bring energy savings of up to 65%.

## Demand-controlled fan speed

In most systems, fans run at full speed or not at all. With OJ GreenZone® control, the fan operation automatically reflects each room's change of use and needs, which greatly reduces energy use and costs.

## Summer/winter compensation

With summer/winter compensation, OJ GreenZone® adjusts temperature setpoints in accordance with the conditions outside. No programming is necessary: simply connect an outdoor temperature sensor to the Master.



## BMS connectivity

OJ GreenZone® is easily connected to your building management system.

- For small and medium-sized plants, the built-in web server will be enough to meet your needs
- For large plants, the built-in BACnet and Modbus features eliminate the need for extra gateways

## Independent report confirms OJ GreenZone® savings

The efficiency of the OJ GreenZone® approach is confirmed by independent research. A recent guidebook from Norwegian research institute Sintef explains the theory – and the OJ GreenZone® system belongs firmly in the 'Good' category.

## Use of specific fan power (SFP)\*

It is important to clearly specify requirements in terms of SFP in order to get an energy efficient DCV system. DCV systems are not necessarily energy efficient.

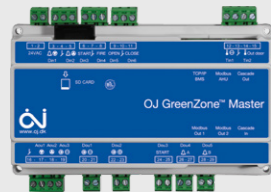
The figure shows the variation of SFP according to the airflow rate for an ideal, good, normal and poor ventilation system, respectively (Schild and Mysen, 2009).

The differences lie in the fact that some systems regulate the airflow rate by using unnecessary throttling.

\* Mads Mysen, Peter Schild, Axel Cablé: Demand-controlled ventilation – requirements and commissioning, Sintef, 2014

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# Product Overview



## OJ GreenZone® master

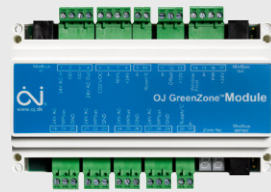
Type: OJ-Zonemaster

- Energy-efficient VAV operation
- QuickPlug™ Modbus installation
- Automatic configuration
- Intuitive web server
- BMS interface

The GreenZone® Master uses sophisticated algorithms to maximise energy efficiency and comfort based on damper positions – and it can handle both branch dampers and common extract zones. Up to five Masters can be connected to a single AHU, each controlling up to 25 modules. The modules are monitored and controlled by means of the Master's built-in web server and BMS interface.

## OJ GreenZone® module MP Bus

Type: OJ-Zonemodul-MP



- For MP-Bus VAV dampers
- Controls air quality and temperature
- QuickPlug™ Modbus installation
- Automatic configuration

The OJ GreenZone® module MP Bus is used in conjunction with MP-Bus VAV dampers, controlling damper positions and air volumes for energy-optimised operation.

## OJ GreenZone® module Modbus

Type: OJ-Zonemodul-M

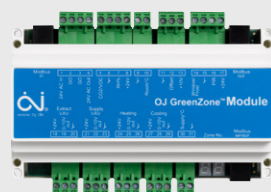


- For direct Modbus VAV dampers
- Controls air quality and temperature
- QuickPlug™ Modbus installation
- Automatic configuration

The OJ GreenZone® module Modbus is used in conjunction with Direct Modbus VAV dampers, controlling damper positions and air volumes for energy-optimised operation.

## OJ GreenZone® module analogue

Type: OJ-Zonemodul-A



- Standard 0-10V signals
- Controls air quality and temperature
- QuickPlug™ Modbus installation
- Automatic configuration

The OJ GreenZone® Module Analogue is used in conjunction with standard 0–10V dampers, where the pressure in supply ducts is maintained constant.

## Touch screen room panel

Type: OJ-RPT-20T



- User-friendly, intuitive operation
- 2" colour touch screen
- Built-in temperature sensor
- Programmable daily/weekly cycles

The room panels allow users to adjust ventilation in a single room, ensuring optimum comfort while still conserving energy. Ideal for office settings, schools, shopping malls, airports, hotels, hospitals etc.

## Room temperature transmitter

Type: TTH-6040-W



- Room temperature
- Wall-mounting
- QuickPlug™ installation
- Modbus RTU

The stylish room temperature transmitter is designed to measure the temperature in a room. In larger rooms one or two work together with OJ-RPT-20T in order to measure the average temperature.

## Duct temperature transmitter

Type: TTH-6202



- Duct temperature
- Telescopic mounting
- QuickPlug™ installation
- Modbus RTU

The duct temperature transmitter is designed to measure the temperature in a ventilation duct. It is particularly flexible and developed for direct duct mounting in ventilation systems. The transmitter can be used in both large and small duct sizes.

## Air quality sensor

Type: VTH-6202



- Optimum measuring performance
- Easy installation with QuickPlug™ Modbus

The air quality sensor measures air quality in ventilation ducts for demand-controlled air handling systems. Air quality is measured on the basis of its content of volatile organic compounds emitted by people, furnishings, cleaning agents, building materials, etc.

## Humidity and temperature sensor

Type: HTH-6202



- Measure and monitor air humidity and temperature
- Large measuring range from 0-100% RH
- All data is transferred to the controller

The sensor is a combined humidity and temperature sensor. Featuring Modbus communication, it is ideal for measuring relative air humidity and temperature in ventilation systems. For installation directly in ventilation ducts, the sensor's adjustable length makes it equally suitable for large and small ducting systems.

## 0-2500 PA pressure transmitter

Type: PTH-6202



- Accurate measurement
- Cost-effective installation
- Specially developed for duct systems

The transmitter is a differential pressure transmitter with QuickPlug™ Modbus. Specially designed for ventilation systems, it very accurately measures and controls current duct pressure.

## OJ Air2 extension for ventilation

Type: OJ-AIR2EXT



- Both analogue and digital inputs and outputs
- Fully integrated in the Green Zone system
- Extend to suit your application

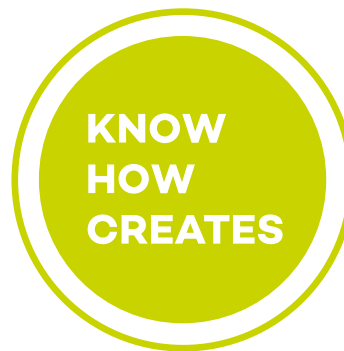
The extension is used in combination with zone modules when additional input/output is required. Eg. for electrical duct heaters, radiators, floor heating, chilled beam, or climate beam.

# The OJ Way

The OJ Way is the unique tie-in of product leadership, global supply chain, perfect platforms for customisation, industry best quality processes, and a diamond partnership in one coherent package.

All processes are focused on the same general goal – to improve the climate – always – through connected electronics solutions.

In this way, we help you differentiate in the market.



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## OJ ELECTRONICS A/S

### Headquarters

Stenager 13 B  
6400 Sønderborg  
Denmark

[www.ojelectronics.com](http://www.ojelectronics.com)