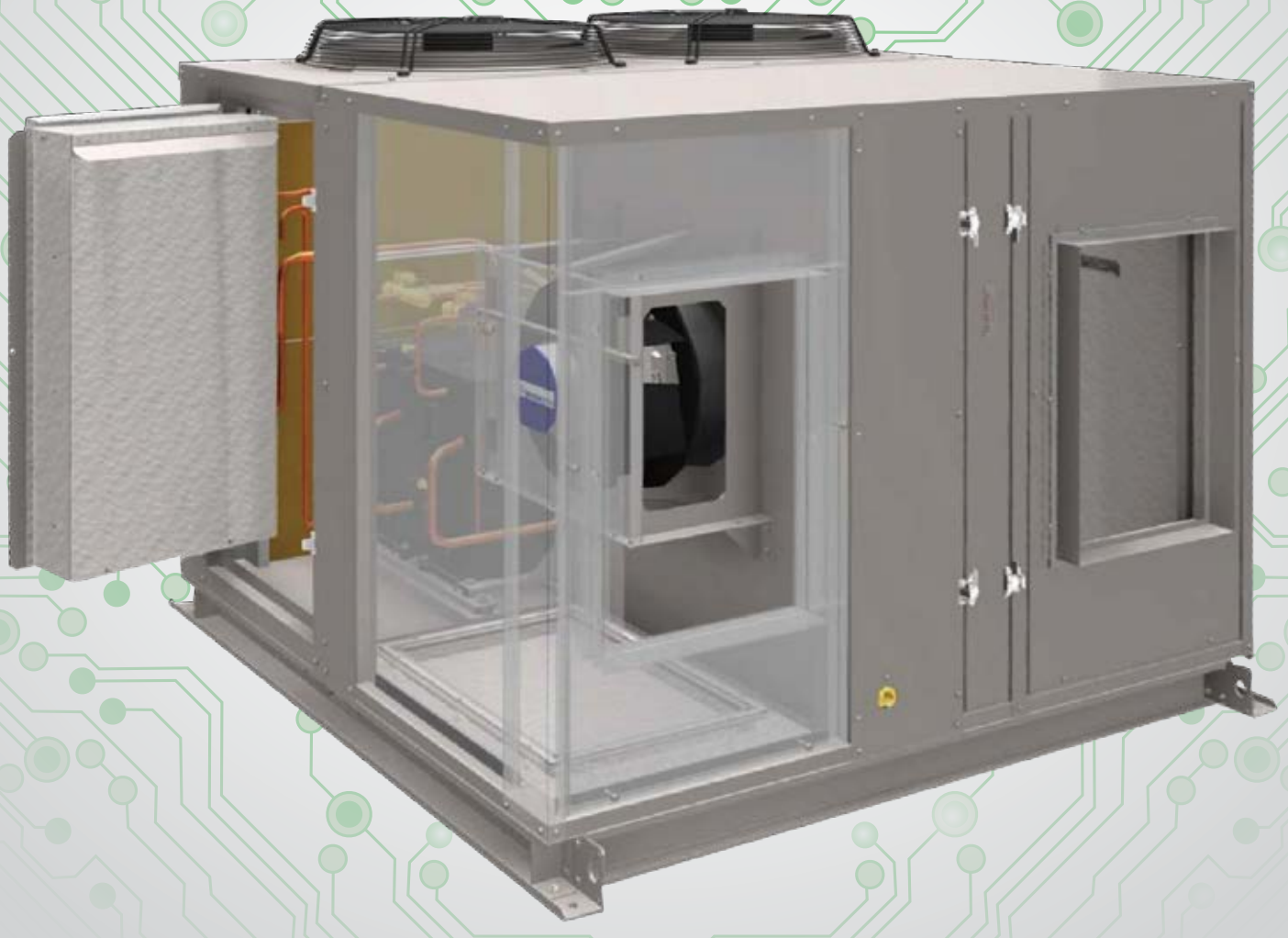
temperzone

ECO SERIES

Intelligent Packaged Air Conditioners



eco SERIES

diGital

R410A

www.temperzone.biz

temperzone
QUALITY AIR CONDITIONING

temperzone

DISCOVER Engineered Solutions

100%
privately owned

Exclusive
Distributor of Hitachi Air Conditioning Products

2
Manufacturing Plants

55 years
experience of temperature control

40,000
m^2 of Factory and Warehouse

Largest
Air Conditioning test rooms in Southern Hemisphere

600
employees across Australia and New Zealand

40%
customisation of commercial product sales

Growth through technology

Our mission is to provide the most competitively priced, reliable and efficient air conditioning equipment available to the international market and service

PEOPLE We encourage and reward excellent performance, and with a wealth of experience we are able to provide the expertise that our customers demand

PRODUCT We provide Australasia's most comprehensive range through strategic alliances with world leading brands

SERVICE We provide National sales, technical and online support, backed by National and International logistics system and a quick efficient warranty process

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DISCOVER
temperzone control

Discover the customisation of temperzone packaged units which provide a high level of flexibility and versatility to meet almost every requirement and application.

At temperzone we are driven by our customers and work with you to exceed the market expectations regarding **innovation**, **energy efficiency**, **application flexibility** and **lifecycle cost optimisation**.

System Controllability
- Emerson
- Carel and Other Capability Options
- High and Low Level Control

Customisation
- Handing Options
- Unique Design Modifications
- Environmental Options

Airflow Distribution
- EC Motors
- Plug Fans
- High Efficiency Air Distribution Control

Noise Attenuation
- Attenuation Design Options
- Breakout Control and Radiated Options

Discover our 8 principles of control

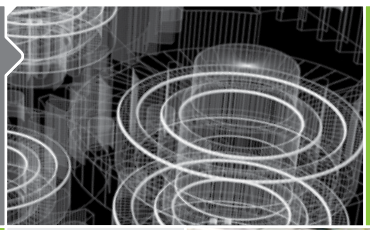
Thermal balance and stabilisation
- Close Control Options
- Refrigeration System Protection
- Partial Load Control

Air Quality and Filtration
- Filter Rails
- Various Filtration Options

Humidification
- Humidification Control Options
- RH% Control

Dehumidification
- Dew Point Control
- Reheat Cycle
- Super Dry Mode Control

Our combination of R&D and end to end manufacturing ensures all our equipment is designed and built as balanced integrated systems.



Test rooms have controllable temperature range from -15°C to +60°C

Accommodates units up to 2.2m high by 2.6m wide

Covers 488 square metres

Largest Air Conditioning test rooms in the Southern Hemisphere

Anechoic chamber for sound level testing

Calorimeter room for capacity testing

Fan testing chamber

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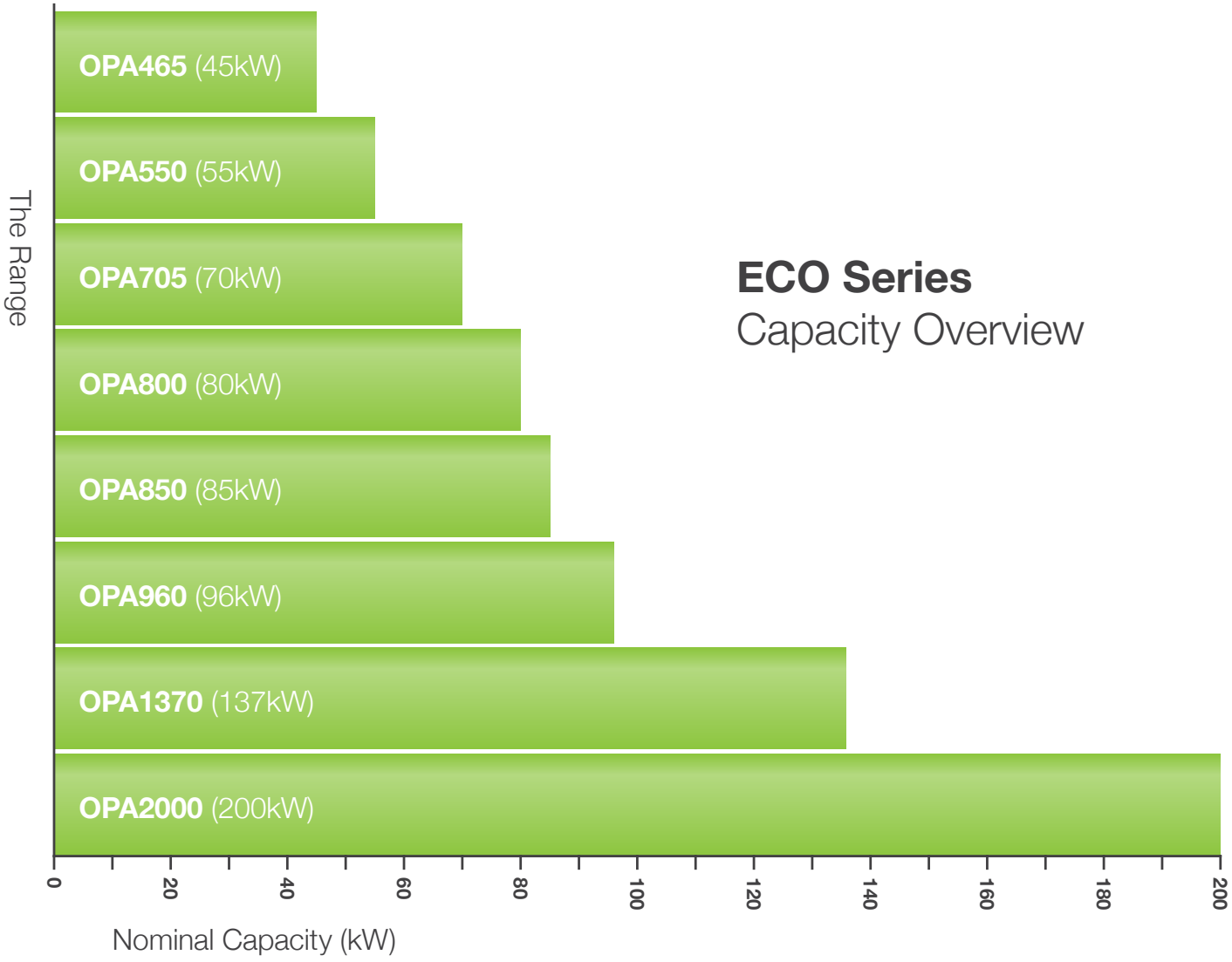
The NEW Eco era of control is now at temperzone

Commercial offices, Shopping centres, Bulk storage, Community buildings.
Discover superior comfort, control and flexibility all with one machine designed specifically to meet all your HVAC solutions.

temperzone has a range for all applications



ECO Series
Capacity Overview

ECO DISCOVER ENGINEERED SOLUTIONS Control the Environment

The landscape

Attitudes towards capital equipment by corporations and other end users are fast changing in the market place. In particular, there are outside influences that are having a significant effect on the decision making process, and therefore the strategic direction of the market. Substantial increases in energy costs & increased regulatory demands are providing the road map for the direction of future product development. Products need to be energy efficient in terms of running costs and maintenance, plus be flexible and innovative with the ability to be fully connected functionally with other integrated building services.

To this end, temperzone has recognised market demands and has developed the ***ECO Range*** of Rooftop Package Units.

This product range incorporates all the latest energy saving features to deliver a standardised product that is efficient, flexible and innovative.

ECO Series - Plug Fan with High Efficiency EC Motor and High External Static

diGital - TZT Controller and Digital Scroll Compressor for close temperature control

The tailored solution

With the temperzone **OPA RKTBG-P ECO Super Series**, we have engineered a package unit that combines smart energy efficiency solutions like: Electronic Expansion Valves, EC Backward curved Plug fans, and Digital Scroll variable capacity compressors.

At the heart of the machine is temperzone's innovative UC controller, which not only controls the safety features, but actively balances capacity, condensing temperature and refrigerant flow to achieve optimum performance from each component maximising energy efficiency to suit the conditions.

Key performance features:

- Flexible options
- Variable capacity refrigeration load
- Variable supply airflow
- High efficiency
- Integrated controls compatibility

eco SERIES diGital R410A

Performance

The system includes two compressors, one of which is Digital thereby providing 15-100% variability and closer temperature control. The OPA also uses a backward curved plug fan for fine tuning of the indoor air to match higher static pressure requirements.

These EC motor fans have a fully integrated speed control that enables soft starting. Fan speed can be stepped to your own requirements or continuously variable using a 0-10V DC control signal.

EEV's

Electronic Expansion Valves (EEV) assist in optimising refrigerant flow. The system includes a digital temperature sensing head pressure control (via pressure transducers) which enables the system to compensate for outdoor ambient temperatures below 20ºC on cooling cycle and above 15ºC on heating cycle.

Quiet

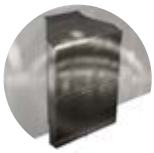
Each EC plug fan can vary speed. This allows slow ramp up with no sudden noise change. The motor can be controlled to have the best air flow for the ducting and requirements as well as used for de-humidifying the space. A large aperture supply air spigot reduces exit velocities and therefore less noise down ductwork. Generous use of insulation also ensures a quiet unit.

Durable

The cabinet and drain tray are constructed from high grade galvanised steel - polyester powder coated (colour Grey) for increased durability. External fasteners are stainless steel. The unit includes a polyester powder coated drain tray. Heat exchange coils comprise aluminium plate fins on mechanically expanded rifled copper tube. The outdoor coil fins are epoxy coated for extra protection in corrosive environments, eg salt laden sea air. Outdoor coil hail protection guards are supplied.

BMS

This UC controller is BMS compatible with multi-unit control possible - either via digital and analogue signals or via Modbus. Refer to temperzone for other protocols available.



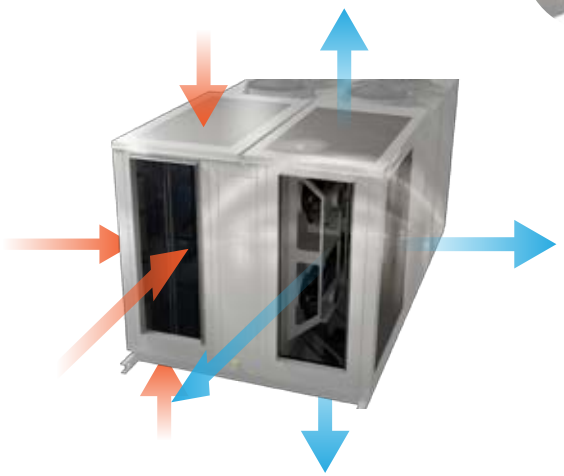
Self Diagnostics

The OPA's Unit Controller (UC) has a 7 segment LED display to indicate faults and running conditions. Many operating status conditions (including history) can be determined, without gauges, simply by using the built-in Service Interface graphical display.

Configurations

Two standard versions are available for each model:

1. Horizontal supply/return air with box mounting channel (OPA RKTBH
2. Downward supply/return air with box mounting channel (OPA RKTBU)



Optional Equipment

1. temperzone TZT-100 Controller kit.
2. Filters (rated EU4)
3. Economiser (factory fitted) - includes dampers and weatherhood
4. Manually adjustable fresh air damper and weatherhood
5. Electronic control systems - available by special arrangement

The range

temperzone ECO Super Series

Model (OPA*RKTBG-P version)	OPA465	OPA550	OPA705	OPA800	OPA850	OPA960	OPA1370	OPA2000
Nominal Cooling Capacity kW	46.7	56.1	69.6	78.7	85.1	96	137	193
Net Cooling Capacity kW	44.6	53.9	66.2	74.2	80.1	87.9	127.7	184
Heating capacity kW	43.5	49.5	67.4	70.7	83.5	90	108	213
EER (Cooling)	2.96	3.05	3.17	2.99	3.04	2.8	3.27/3.20	2.81/2.8
Air Flow L/S	2500	2800	3700	4250	4200	5200	7500	9500
Power Source	3 phase 342-436V AC 50Hz							
Indoor fan FLA	5.7	5.7	3.1 (x2)	5.7 (x2)	4.0 (x2)	4.0 (x2)	3.1 (x4)	11.0 (x2)
Run Amps (Total System) A/Ph	31/27/27	38/30/29	42/36/37	50/40/40	49/44/44	68/59/59	72/77/77	125/125/125
Finish	Grey Polyester Powder Coat							
Net Weight kg	774	840	1170	1170	1170	1113	2000	3070
Shipping Weight kg	869	949	1315	1315	1215	1240	2180	3220

DISCOVER Energy savings - Replacing old technology

The decision to replace older equipment presents many important aspects to consider. There are both operational and practical reasons that may influence the right decision.

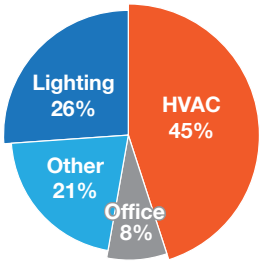
Maintenance: What are the ongoing maintenance costs associated with keeping old equipment in service, and are the proprietary parts still available?

Refrigerant: Old equipment can use types of refrigerants that are subject to phase out quotas and can mean substantial price increases to future maintenance/repairs.

Control: Modern equipment can be fully integrated into compatible building management systems.

And most importantly

Energy Efficiency: With annual substantial increases in electricity costs, the type and efficiency of equipment is an important part of the purchase agenda. Having the right equipment can deliver significant power savings over the operational lifetime.



HVAC can in some commercial applications, be responsible for up to 45% of the overall building electricity usage, therefore it is important to invest in the right equipment. Running costs and payback periods can be influenced easily.

The ECO Range of packaged units are built to meet these needs.

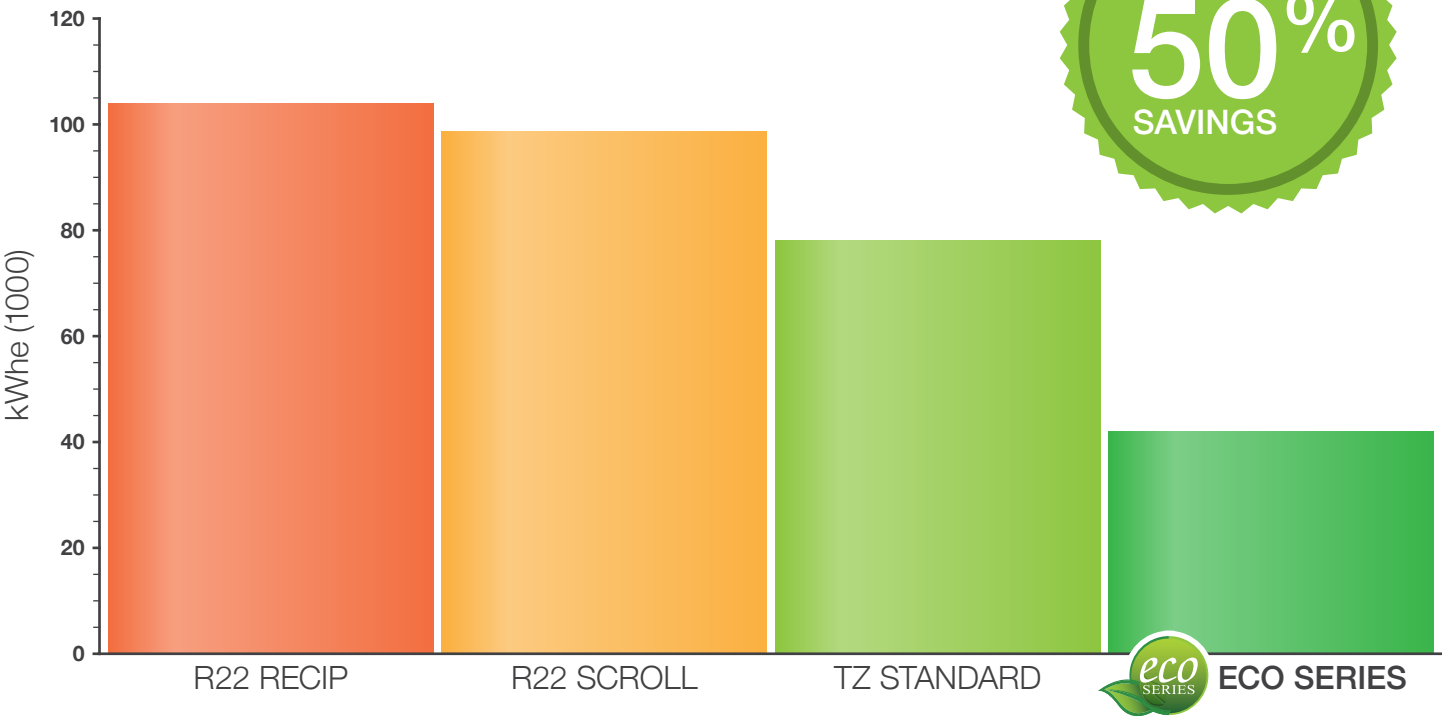
Case Study Retail Outlet

As part of the ECO development program, 3 temperzone OPA series machines with the ECO options upgrade package were commissioned to study the results of a retail store development.

- The plant was to control a peak load of 124 kWr GTH / 85 kWr GSH (0.685 SHR).
- The system occupancy load was variable to a simultaneous peak of 580 people
- The building hours of operation being 365 days per year 8am - 9 pm being 4745 hours per year.

Taking into account the building's heating, cooling and ventilation requirements over a full 12 months period when modeled against various alternate systems; the ECO system delivered up to 40% savings on running costs.

Unit Comparison



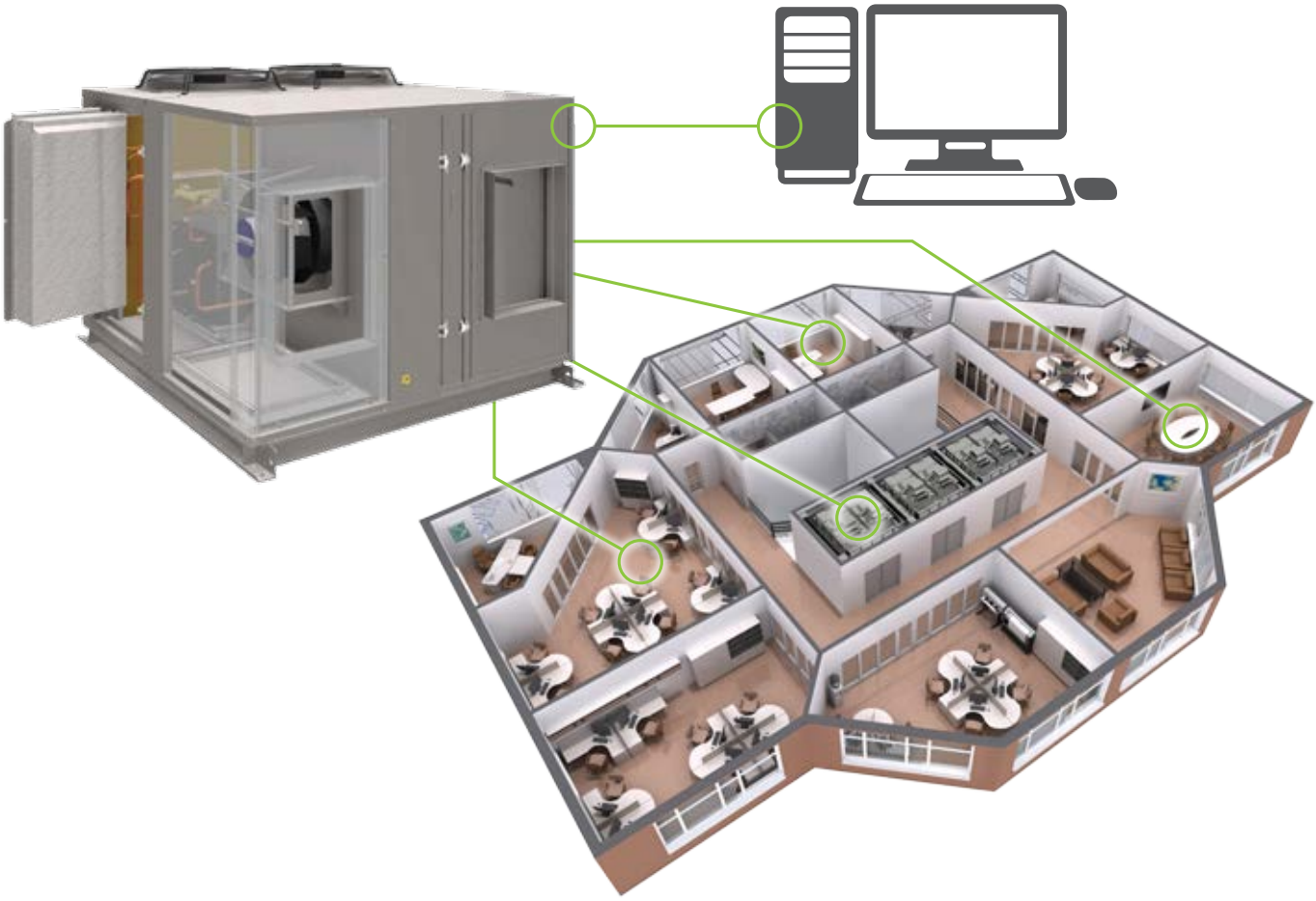
Based on
- Hours of operation: 4745 hours per year (8am to 9pm, 365 days per year)
- Occupancy - variable to simultaneous peak of 580 persons
- Peak cooling load - 124kWr GTH/84.6kWr GTSH, (ACADS CAMEL 5.10.2)
- Plant configuration - 3 x 55kWr Rooftop PAC Units
- Energy calculations using ACADS BEAVER 7.11.0

DISCOVER BMS Connectivity

The Eco series is fitted with temperzone's advance unit controller which ensures optimum operation and provides access to a range of data via local service tool devices or via external communications.

Through Modbus connectivity it is possible to control items such as;
- Compressor start/stop
- Compressor capacity
- Indoor fan speed

There is also a extensive list of read parameters giving you a window into the system operation and status.



Depending on the unit model the unit controller may be capable of the following:

- Ability to turn the compressor on and off.
- Read and control the indoor fan speed.
- Read and control cooling, heating or fan only.
- Read and control the capacity.
- Read and control the operating mode (normal or de-humidification mode).
- Monitor temperatures, pressures, states of other input signals.
- Observe unit safety timers.
- Observe the state of the outputs such as CMC relay, R/V relay etc.
- Observe information on reported faults.

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DISCOVER Engineered Solutions

ECO Series

Intelligent Packaged Air Conditioners

temperzone
Our locations

temperzone australia pty ltd

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Email: sales@temperzone.com.au

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Melbourne.	(03) 8769 7600	**Tasmania.**	(03) 6331 4209
Adelaide.	(08) 8115 2111	**Newcastle.**	(02) 4962 1155

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