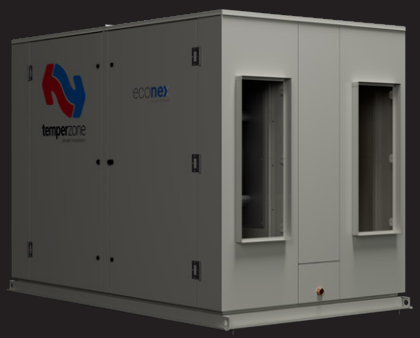
econex
next gen R32 inverter

AIR COOLED

Econex Packaged Units



temperzone
climate innovations

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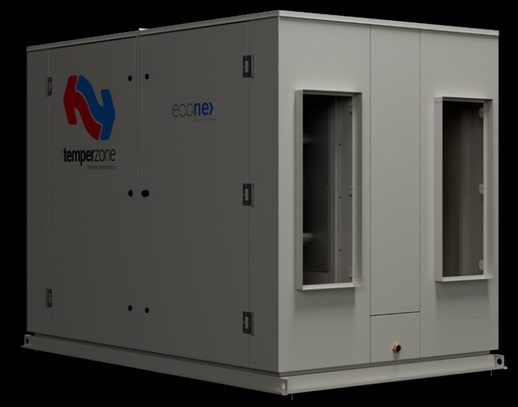
product video

Econex, providing leading efficiency and sustainability

Heating Capacity
26.9kW - 194.8kW

Cooling Capacity
25.4kW - 202.7kW

Econex Packaged systems offer a lower GWP solution with superior efficiency.



From light to large commercial, Temperzone can provide versatile air-cooled packaged solutions for your buildings.

Energy efficient comfort control

With the use of an inverter compressor technology the Econex Packaged unit range provides a precise load variation response and superior part load performance for closer comfort control and higher energy efficiency.

71–81% reduction in GWP

Utilising R32 Refrigerant, Temperzone's Econex Packaged units enables a 71–81% reduction of Global Warming Potential (GWP) per kW of cooling when compared to R410a units. Temperzone aspires to lead the commercial HVAC industry in focusing to reduce the global warming potential of air conditioning products.

Features

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PROUDLY MADE IN AUSTRALIA

Econex Packaged units (25.4kW - 202.7kW) R32

Inverter Compressor
Closely matching the performance to the load requirements during all seasons

EC Plug Fan
High static plug fans that can be externally controlled via 0~10VDC or BMS command

EC Condenser Fans
EC Condenser fans provide greater efficiency and control with soft starting and low air noise

Dual EEV Systems+
Dual EEV offers optimum control of superheat for outstanding comfort and humidity control

Intelligent Unit Controller
Ensures the unit runs at its optimum efficiency and provides system operation data

Wide Temperature Operating Range
From -15°C to +52°C* ambient

Corrosion Resistant Design
Marine grade surface protection and epoxy coated coil protection

Economy Cycle
Optional economy cycle and fresh air for reduced power consumption in shoulder seasons

Low GWP Refrigerant
R32 refrigerant has a significantly lower GWP than R410A

- Louvred guards
- 3rd party connectivity
- Filter rails
- Inbuilt Service GPO
- Easy maintenance access
- Foil face polyethylene insulation

+ Dual EEV available on OPA 250-560 only.

New Compact Design
Reduced unit footprints for easy and cost effective unit placement

New Intelligent De-ice
Quick & Efficient de-ice resulting in increased heating performance

BMS
BACnet™ or Modbus via RS485 (or TCP/IP option)
*BACnet is optional accessory

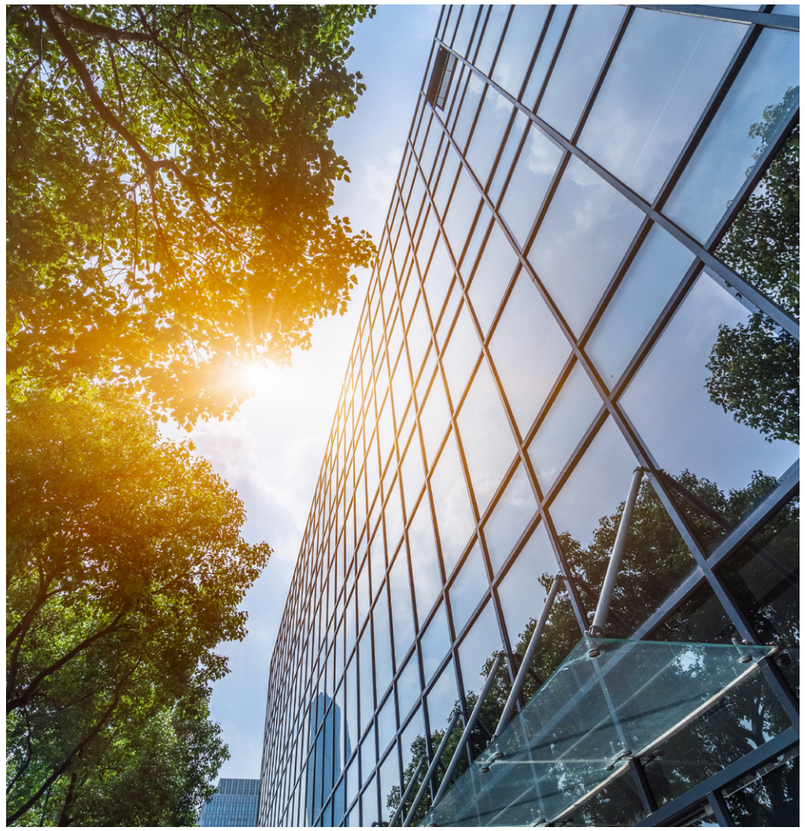
Lower Global Warming Potential Air Conditioning

Lower global warming potential

With a smaller refrigerant charge and a GWP of 675*, OPA Econex R32 refrigerant units result in a 71-81% reduction in overall GWP per kW of cooling or heating when compared to R410A systems (GWP 2088*).

Reducing future costs

As higher GWP refrigerants face increasing cost due to emissions tax levies the specification of R32 systems will represent a significant reduction in the future costs associated with owning and maintaining these systems.

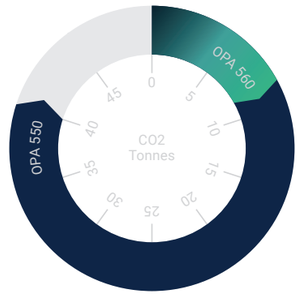


*AR4 Standard

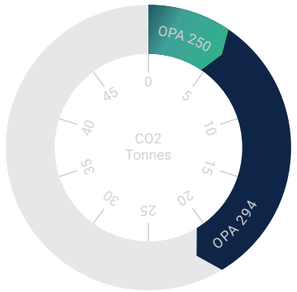
Potential Carbon Emissions attributed to refrigerant (CO_2 Tonnes)

Older Model

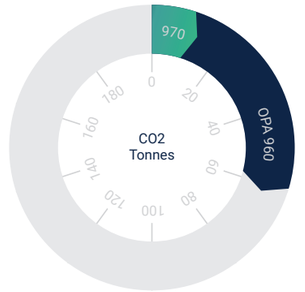
Econex



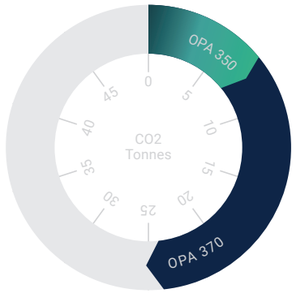
Reduced 77% CO_2 Tonnes



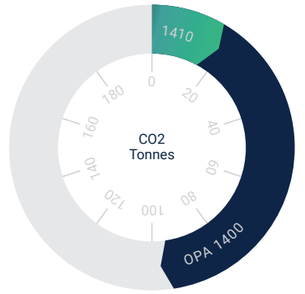
Reduced 74% CO_2 Tonnes



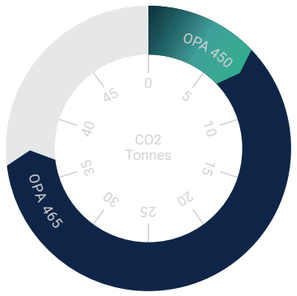
Reduced 78% CO_2 Tonnes



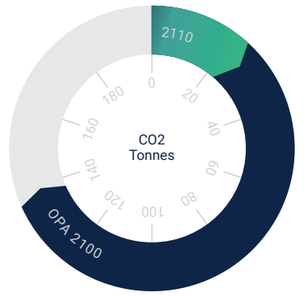
Reduced 71% CO_2 Tonnes



Reduced 80% CO_2 Tonnes



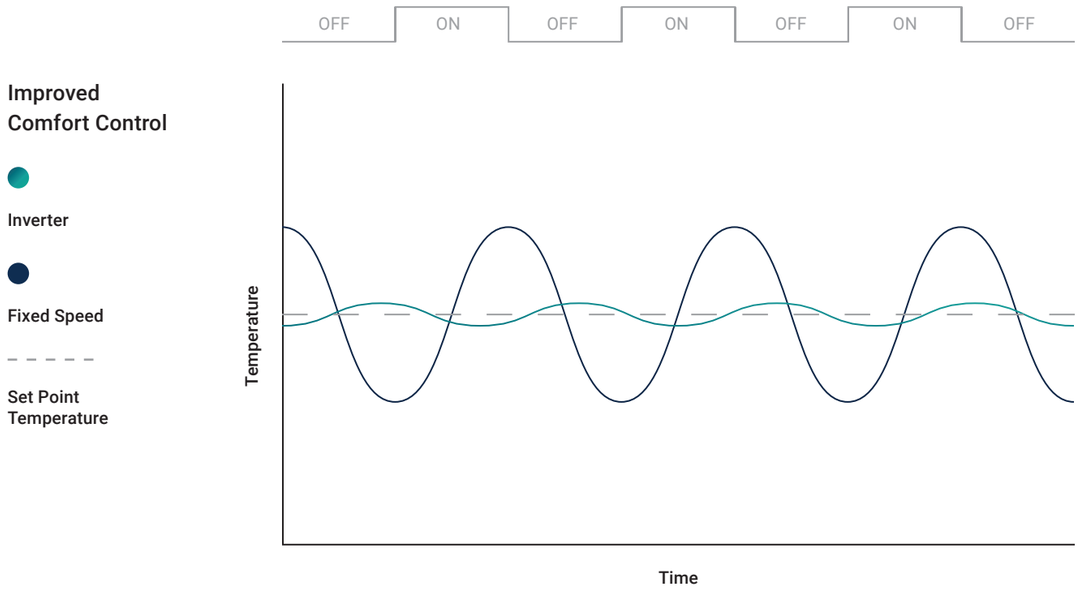
Reduced 81% CO_2 Tonnes



Reduced 81% CO_2 Tonnes

Close Comfort Control

Econex Inverter compressor technology delivers precise control of indoor air temperatures for superior year round comfort with leading energy efficiency.



Inverter Comfort Control

Fixed speed air conditioners are single speed on/off systems. Once the desired temperature is reached, they turn off, turning back on only when the temperature drops below or rises above a set level. This cycling between full or no capacity causes unnecessary waste of electricity and doesn't maintain a constant room temperature.

The use of variable capacity inverter compressors allow a precise load variation response for superior temperature control. The use of electronic expansion valves and variable speed indoor and outdoor fans further allows a more effective, and efficient, response to varying load conditions.

The OPA 820 to 2110 feature multiple refrigeration systems with inverter and fixed speed compressors. The systems are staged so each fixed speed system comes online as the inverter compressor reaches maximum capacity, this enables variable capacity control and energy efficient operation.

Inverter Compressors

Econex inverter compressors only use the amount of energy to suit the operating condition maximising your SEER performance.

- Soft starting, using much less power at start up.
- Matching capacity to load avoids temperature fluctuation and reduces energy input power.
- Full inverter compressor range from 16-100% compressor speed.
- Reduced amount of start/stop for long life operation.

Seasonal Energy Efficiency (SEER)

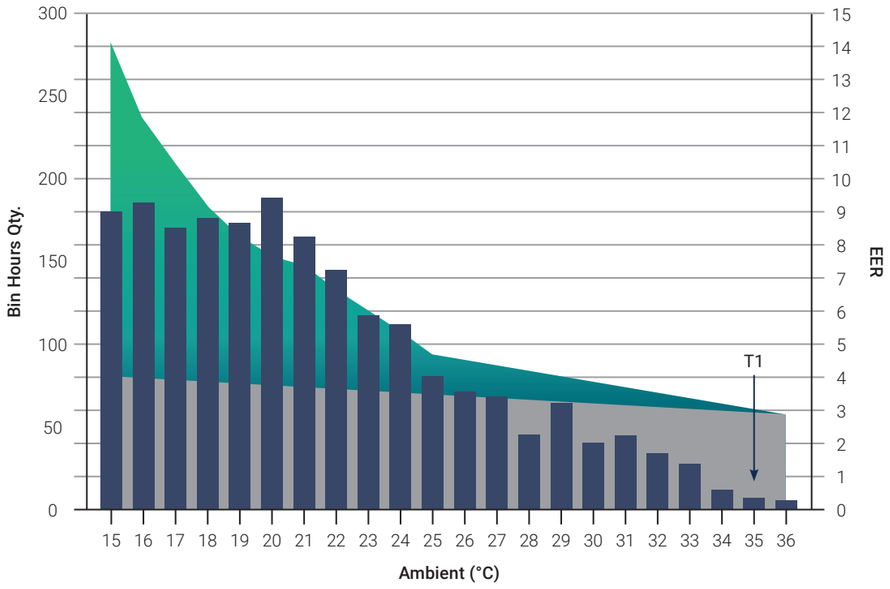
Superior seasonal performance with Econex Inverter technology.

Econex OPA 560 Variable Speed vs Fix Speed – Commercial Cold Zone

EER Econex Variable Speed

EER Fixed Speed

Climate Bin Hours – Cold Zone



Seasonal energy efficiency requires testing of units at “part load”, as well as traditional T1 & H1 conditions. Data is then mapped against the bin operating hours for the corresponding temperate zone to determine seasonal energy performance.

- Units operate the majority of the time at part load.
- Inverter compressors are more efficient at part load.
- Variable speed fans are more efficient at part load.

MEPS EER condition (T1) is a single point where units rarely operate. SEER goes a step further to estimate real use, overlaying the “bin hours” shows actual efficiency is better for variable speed systems.

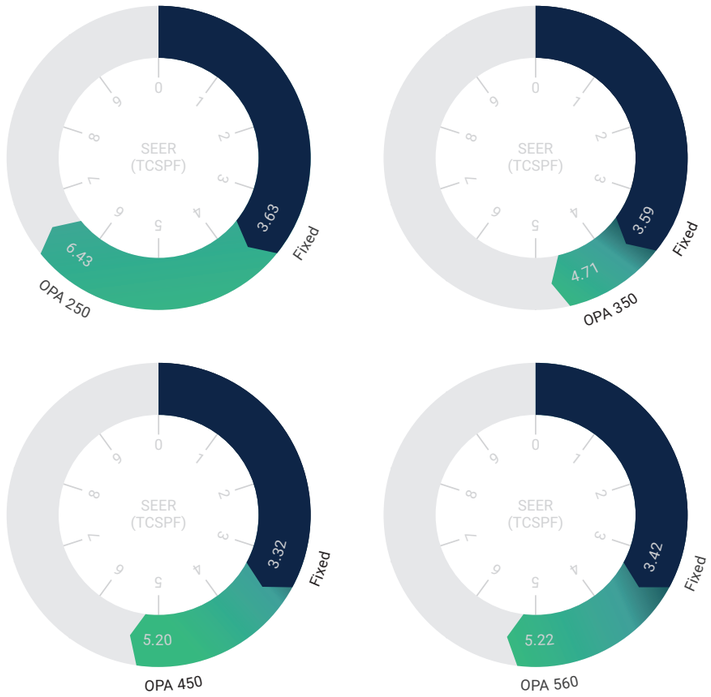
Compared to the same capacity fixed speed unit, the Econex OPA 560 considerably increases in efficiency (EER) as the ambient reduces, while the fixed speeds system efficiency remains relatively unchanged.

Total Cooling Seasonal Performance Factor – Commercial Cold Zone

The Econex range, when compared to the same capacity fixed speed units, has considerably higher seasonal energy efficiency factors.

Fixed Speed

Econex

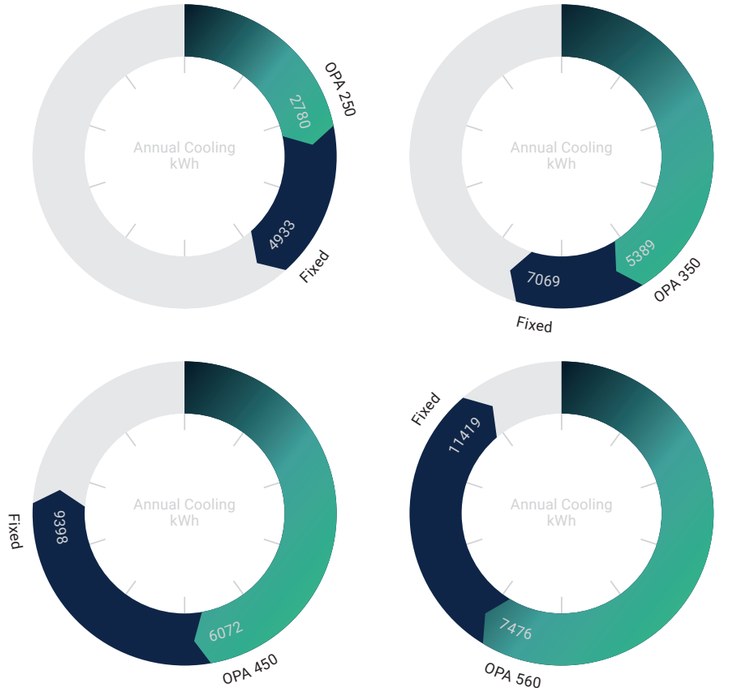


Annual Cooling kWh – Commercial Cold Zone

MEPS Seasonal performance energy usages for Econex range shows considerable energy savings (kWh) compared to fixed speed equivalents.

Fixed Speed

Econex

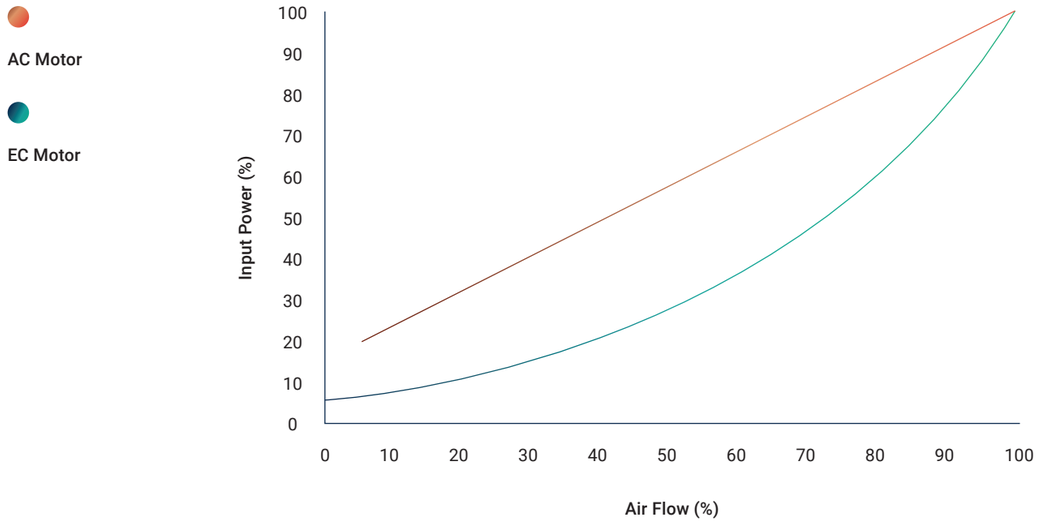


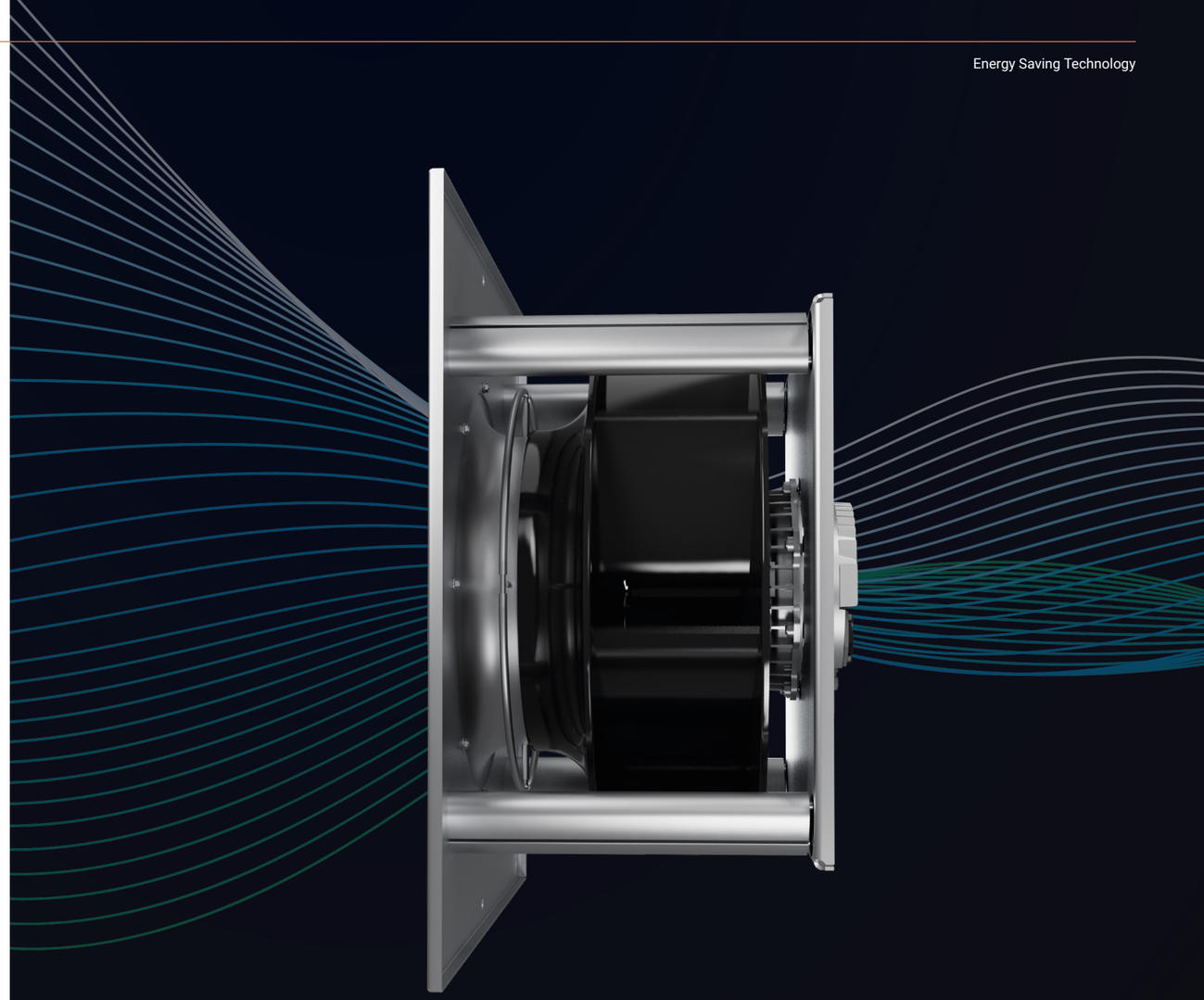
Energy Saving Technology

Intelligent system control technology offers leading energy efficiency with precision control of the air conditioners refrigeration system.

EC Fan Technology

Our high-efficiency EC fan motors are up to 50% more energy efficient than Belt drive or AC motor alternatives and enable quiet operation with slow ramp-up and no sudden noise changes. Achieve precise comfort with custom select fan speeds or continuously variable fan speed control.





EC Plug Fans

EC Plug fans control airflow accurately and efficiently.
Fan speed can also be controlled via external signals via input or Modbus.

- Programmable for exact airflow.
- High static pressure.
- Enables variable airflow operation.
- Longer motor life resulting from lower running temperatures.
- Lower maintenance and commissioning costs.
- Slow ramp up for quiet operation.
- Longer bearing life due to soft start.

EC Condenser Fans

EC fans increase overall efficiency. Infinitely variable fan speed control means refrigeration efficiency can be optimised in all climatic conditions.

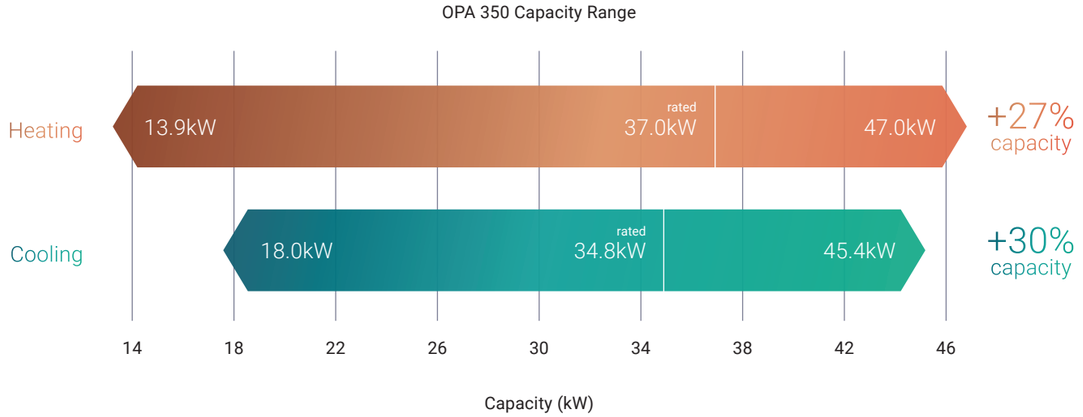
- Up to 50% more efficient than AC fan technology.
- High static pressure.
- Minimised power consumption under optimised. floating head pressure control.
- Quiet operation mode.

Ideal solution for open spaces

High Performance Design

Extra capacity with very wide heating and cooling ranges

For versatile specification, all R32 inverter packaged systems offer a very wide heating and cooling capacity range enabling reliable comfort at times of peak load and increased energy savings under low load conditions.

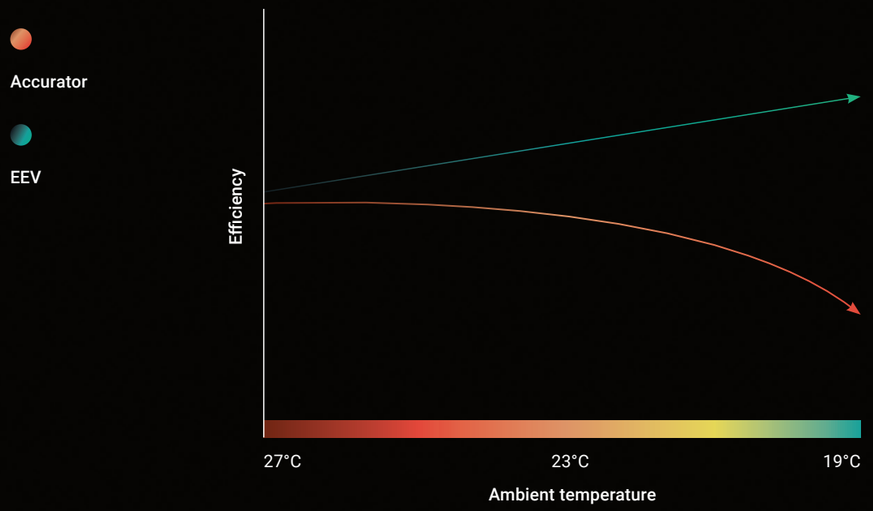


Extreme weather operation

Designed for the harshest conditions these R32 packaged units are designed to operate in ambient temperatures from -15°C to 52°C* to ensure you're always comfortable, whatever the weather. (*OPA 820 to 2110: -10°C to 50°C)

Electronic Expansion Valves (EEV)

Electronic Expansion Valves (EEV's) optimise refrigeration systems ensuring the evaporator coil is fully utilised at all times which leads to increased energy savings. In addition, the discharge pressures can be lowered based on ambient conditions by simply increasing the speed of the EC condenser fans leading to even higher savings.

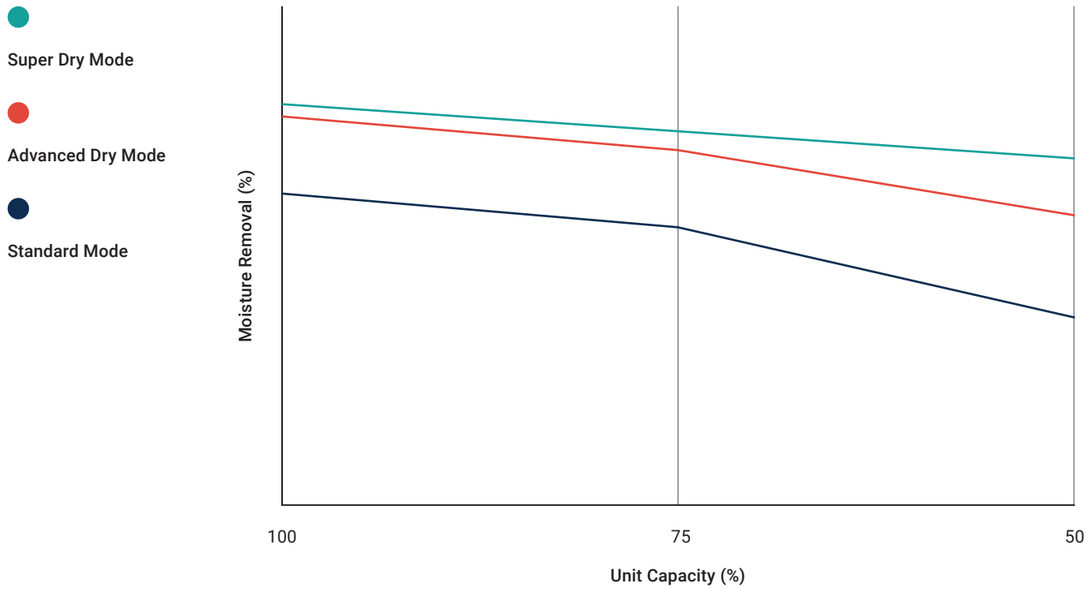


Benefits Include:

- EEV's enable improved efficiency and reduced operating costs at part-load conditions.
- They also facilitate maximised energy savings during the shoulder seasons – periods in which air conditioning systems often run at part-load.

Advanced & Super Dry Mode

Econex offers superior levels of Dry Modes to suit your requirements.



Advanced Dry Mode and Super Dry Mode can only be achieved by Temperzone Econex units as they utilise optimised Dual Electronic Refrigeration Valve control (IP protected) to achieve exceptional dehumidification performance across the units full operation range.

Advanced dry mode can provide de-humidification over a wide range of operating conditions and unit duty whilst the indoor fan speed can remain constant.

Super dry cooling mode requires the UC8 controller to vary the indoor fan speed. Under most operating conditions indoor fan speed will be equal to the speed requested by the thermostat or other controller. Only when the desired indoor coil temperature cannot be achieved by the dual electronic expansion valves alone then the controller will adjust the indoor fan speed to obtain de-humidification.

Intelligent De-ice

New intelligent de-ice enables improved heating performance in colder conditions. Optimised coil circuitry and new controller logic results in fast and more effective de-ice.

Econex de-ice is designed to support the full turn down of the compressor and de-ices from the top to the bottom of full height coil circuits. Utilising a highly balanced split circuit coil design prevents excess pressure drop as the refrigerant changes phase.

Allows:

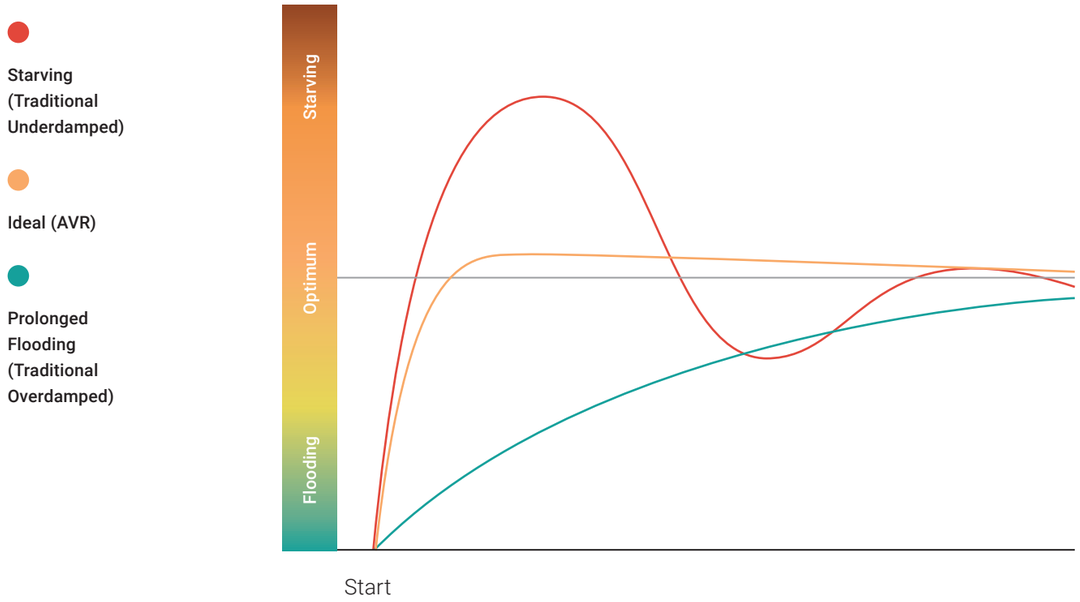
- Capacity during de-ice to be controlled to 10°C condensing temps.
- Aim to melt ice, not evaporate water. Evaporating water requires 6.75 more energy than melting ice.
- Econex de-ice at a low capacity which is more efficient, and takes similar time as traditional de-ice.
- Operation is extended up to 50 minute intervals between de-ice cycles, up from 35 min.
- Better capacity control allows better room temp control under part load conditions.

Durable Long Life Design

Econex units are designed to be highly durable and suited to the harshest environmental conditions.

Adaptive Valve Regulation

Temperzone's proprietary Adaptive Valve Regulation system (AVR) ensures that Temperzone inverter air conditioning systems run more efficiently and enjoy a longer operational life. AVR maximises efficiency in both heating and cooling cycles by regulating refrigerant flow capacity, allowing the system to maintain stability and efficiency over the full range of operating conditions.



Starving (Traditional Underdamped)

Ideal (AVR)

Prolonged Flooding (Traditional Overdamped)

AVR also prevents:

- Prolonged flooding (oil washed out of the system), which leads to seized bearings and compressor damage.
- Improves Compressor Life cycle.
- Starving, which leads to HP/LP trips and reduced EER / Duty. Continuous starving leads to compressor motor overheat.

1. Epoxy coated coil protection for superior corrosion resistance
2. Marine grade pretreatment and polyester powder coated galvanised steel, inside and out
3. Louvre Guards for added protection against severe weather, UV damage to coils & accidental contact
4. Sloped outdoor section allows water from rain and de-ice to be drained from the unit*
   **OPA 680 outdoor section is flat*
5. SKT coated screws provide a higher corrosion resistance than 316 stainless steel
6. Remove bungs to create positive pressure electrical compartment and clear dust
7. Closed cell foam insulation ensuring no particles are introduced into the air stream
8. Isolated compressor and electrical compartment for less noise and weatherproofing

Control Options

From advanced commercial controllers to stylish touch screen controllers, Temperzone has a control option to suit your space and application.

TZT-100

Temperzone's TZT-100 thermostat is an advanced controller suited to commercial environments. It delivers comprehensive control for your system not available with other thermostats.

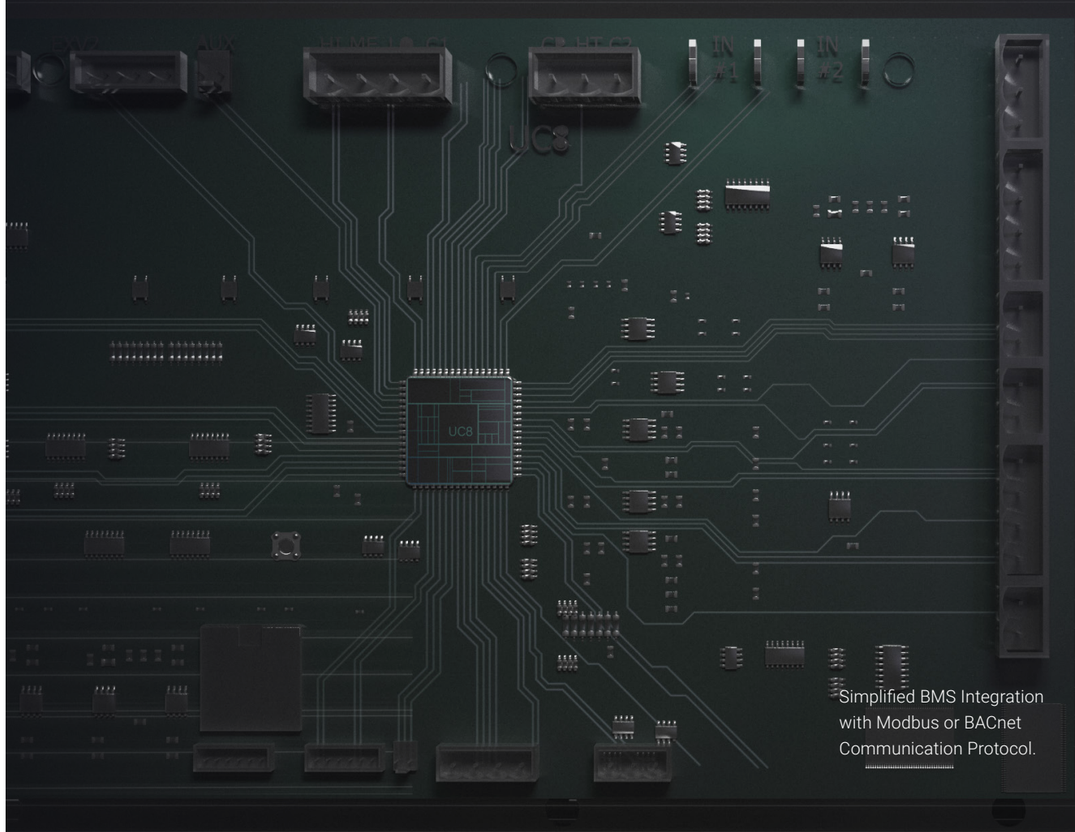
Features

Modes – cool / cool-dry / heat / auto-dry / auto	Programmable occupancy inputs
Set airflow - auto / low / med / hi (customisable)	On demand override count down timer up to 12hrs
Key board and temperature locks	Filter monitor option (by hours)
7 Day programmable time clock	Continuous or Intermittent fan operation
Set temperature: 5°C to 50°C at 0.5°C increments	Connects to outdoor unit (UC8)
Remote sensor inputs	

BMS Connectivity

Econex Packaged units can connect into a BMS for control and operation.

- Through the outdoor unit via the UC8's Modbus/RS485 port with multi-unit control capability.
- Up to 99 units can be connected on a common RS458 bus in daisy chain design.
- Daisy chain wiring saves on amount of wiring and required labour time.
- BMS communication cable (2-wire shielded).
- Maximum cable length of 1000m.



Simplified BMS Integration with Modbus or BACnet Communication Protocol.

BMS

Minimised Footprint

Unit footprints have been minimised to reduce associated installation costs and accommodate confined spaces.

Footprint Reduction

Econex footprint sizes have been reduced considerably. This amounts to between 20% to 22% for the Econex OPA 350 to 560, and 10% to 16% for the Econex 1410 and 2110 when compared to the previous generation product.

OPA 350

OPA 370

OPA 450

OPA 465

OPA 560

OPA 550

OPA 1410

OPA 1400

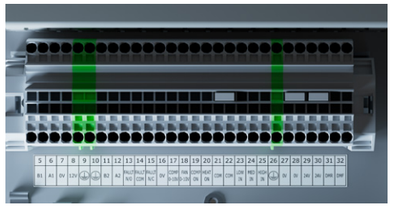
OPA 2110

OPA 2100

Wiring is made easy and convenient with new client wiring terminals.

Convenient Client Wiring Terminals

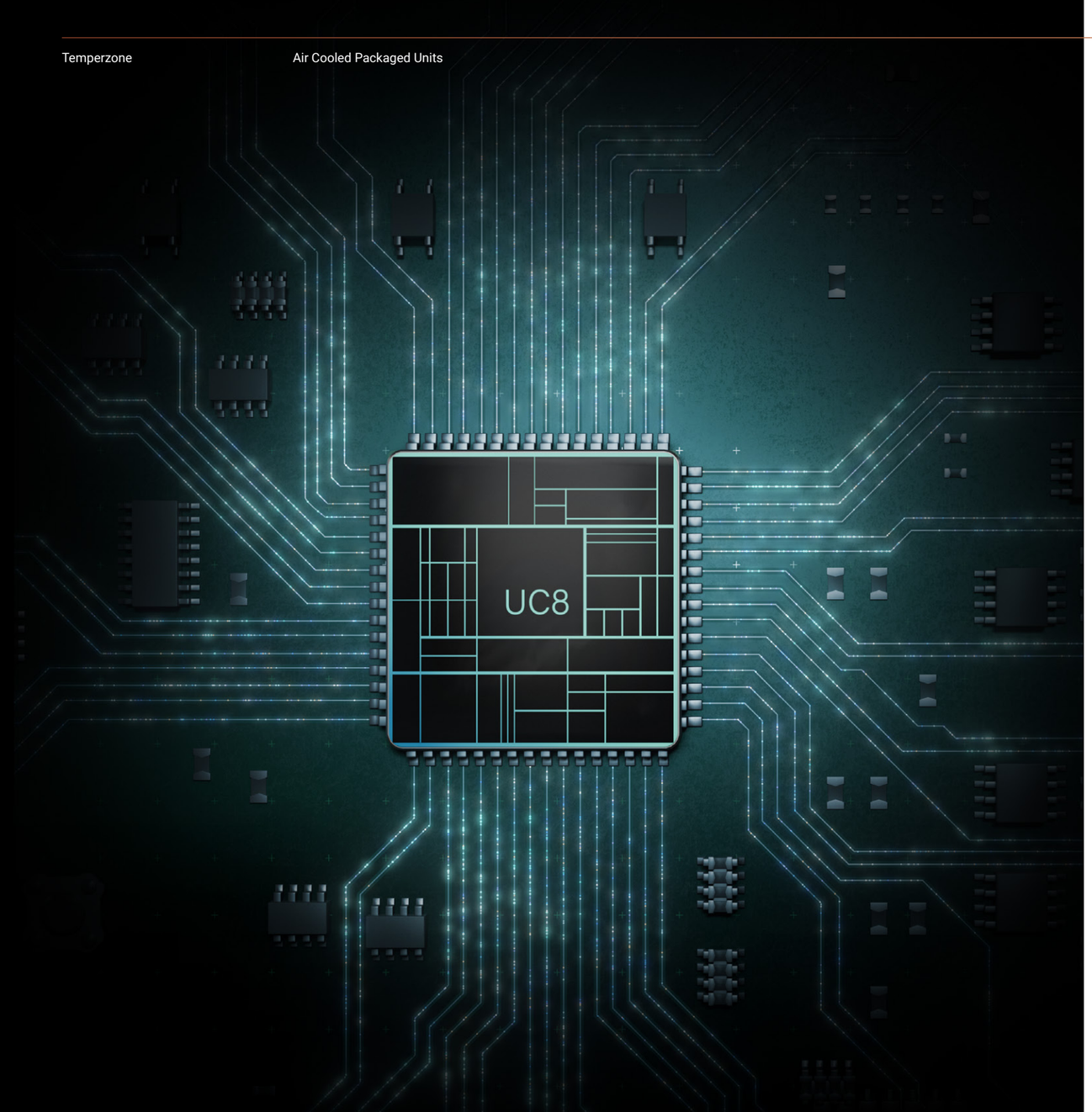
Installer electrical access has been improved with connections more easily accessed through customer terminals. Units are fully wired and the main power supply along with communication connections can be wired directly within the terminal.



Easy Installation & Maintenance

While simplicity of design enables quick and easy installation, in-built functionalities mean that after-sales operation and servicing is also a time-efficient process.

1. Removable access cover for inspection of outdoor coil headers and sensors
2. Easy wiring terminal connections for communications and mains wiring
3. Socket Outlet (SO) in electrical panel for single phase appliances
4. Generic mechanical and electrical parts for easy servicing and replacement
5. Optional drain cups with spigots for PVC pipe connections for remote drainage
6. Access covers for indoor coil inspection and drain tray cleaning
7. UC8 7-segment fault display
   In-built electronic safeties
   Adjustable indoor airflow
8. Easy access hinged maintenance service doors with door stays
9. Deep and wide Indoor coil drain tray with brass hex socket removal connection
10. Four 16mm unit mounting holes in cross channels
11. Easy access design with spacious access to refrigerant components for servicing
12. Easy filter access through supply air chamber hinged service door



UC8 intelligent unit controller

Intelligent unit controller (UC8) has been designed to deliver efficient and precise system control under all conditions. Intelligent control of outdoor fan speed, coil temperatures, inverter compressor speed and advanced refrigeration safeties.

WiFi Service Utility Tool

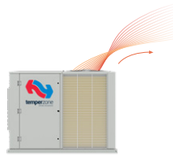
WiFi Service Utility (WSU) is a portable control interface that plugs directly into the UC8 board on a Temperzone Air Conditioning Unit. It allows you to monitor a wide range of operational parameters, view fault logs and even take control of the unit. It has its own WiFi network built in and the control and diagnostics are done wirelessly from a smartphone, tablet or notebook PC.

Flexible Handing Options

Econex units offer flexible handing configurations as standard to suit site requirements.

Standard units are supplied with left hand supply air (when facing the spigots). Alternative configurations for supply air and return air openings are shown in tables on the following page.

Economiser Cycle option
The Economy Cycle presents significant energy savings. When the outside ambient air is below set point required, the compressor is cycled off, outside air dampers open, and the supply air fan continues to run, bringing cool air in from outside.



High Static EC Outdoor Fans
The OPA 250 – 970 high static outdoor fans allows at least 125pa* allowing condenser air to be ducted in applications where the unit is positioned inside.
*OPA 1410 & 2110 maximum 120Pa

Standard Hand
Horizontal Discharge
Downward Discharge
Side Discharge
Top Discharge

Opposite Hand
Horizontal Discharge
Downward Discharge
Side Discharge
Top Discharge

Flexible Handing Options

OPA 250 to 2110 offer flexible handing configurations available to suit the application.

Standard units are supplied with left hand supply air (when facing the spigots). Alternative configurations for supply air and return air openings are shown in the below tables.

Configuration Without Economiser

Return Air - Without Economiser

Supply Air	Top	Front	Down	Side
Top	•	•	•	•
Front	•	•	•	•
Down	•	•	•	•
Side	•	•	•	•

All options are available in standard or opposite hand configuration

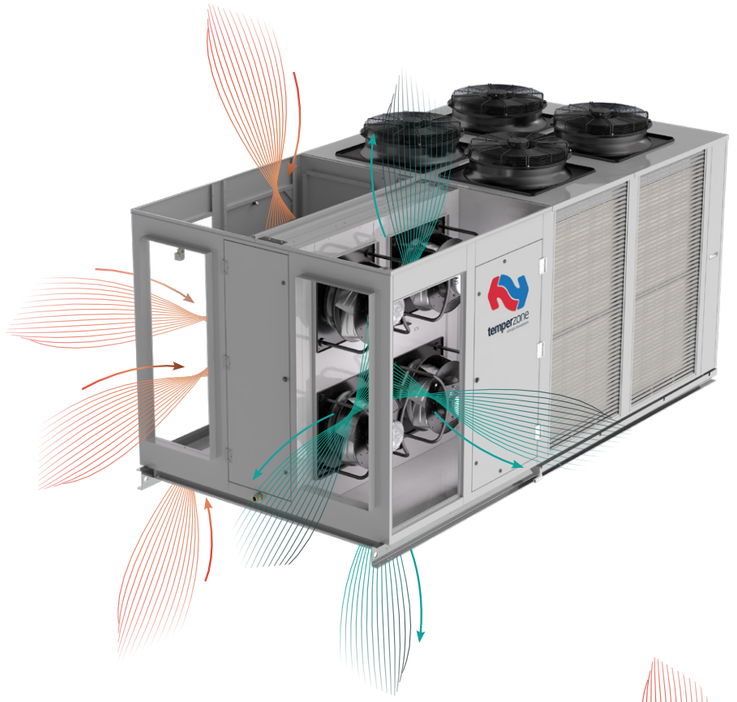
Configuration With Economiser

Return Air - With Economiser

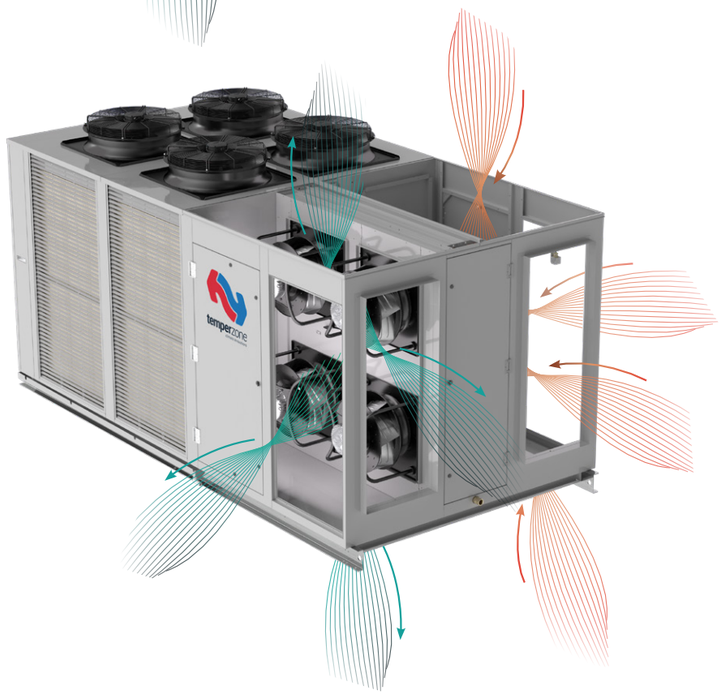
Supply Air	Top	Front	Down	Side
Top	•	•	•	
Front	•	•	•	
Down	•	•	•	
Side	•	•	•	

All options are available in standard or opposite hand configuration

Right Hand Configuration (Opposite Hand)



Left Hand Configuration (Standard Hand)



Optional parts

- Filters - rated EU4/G4 disposable
- Economy dampers
- Economy cycle control
- Supply and return air handings

Econex OPA Specifications

econex
nex gen R32 inverter

PROUDLY MADE IN AUSTRALIA

Model	OPA 250	OPA 350	OPA 450	OPA 560	OPA 680
Cooling	25.4 (10.1~29.1)	35.9 (18~45.4)	44.9 (18.2~52.4)	55.6 (27.4~64.8)	66.6 (13.1~72.4)
Cooling	24.6	34.8	43.3	53.5	65.0
Heating	26.9 (6.5~29.3)	37.0 (13.9~47.0)	44.4 (16.5~54.5)	57.0 (24.0~63.1)	63.5 (11.5~73.8)
TCSPF* (Cold/Mixed/Hot)	6.43/5.41/4.73	4.71/5.60/4.85	5.20/4.56/4.34	5.22/4.60/4.21	4.45/4.04/3.95
EER / AEER * Cooling	3.20 / 3.18	3.15 / 3.14	2.99 / 2.98	2.99 / 2.98	3.59 / 3.57
COP / ACOP * Heating	3.33 / 3.31	3.21 / 3.19	3.14 / 3.13	2.98 / 2.97	3.99 / 3.97
Power Supply	3 Phase 400 V a.c. 50 Hz + N + E				
Run Amps / Phase (A/ph.)	12.5/11.5/13	17.5/15.5/19.5	24/22/24	28/26/29	27/27/33
Controller	UC8 (x1)				UC8 (x2)
Cooling / Heating (°C)	-10 ~ 50 / -10 ~ 25				

Model	OPA 250	OPA 350	OPA 450	OPA 560	OPA 680
Compressor					
Type	Inverter Scroll x1				Inverter Scroll (x1) + Fixed Scroll (x1)
Refrigerant	R32				
Fans					
Indoor	EC Plug Fan x1				EC Plug Fan (x2)
Outdoor	EC Axial x1				EC Axial (x2)
Airflow (l/s)					
Nominal**	1250	1800	2200	2600	3500
Max.@2.5 m/s face velocity	1970	2450	2900	3610	6180
Noise Data* **					
SPL @ 3 Metres (dBA)	58	62	64	67	56
Overall Dimensions (mm)					
Length	1795	1795	2330	2330	2398
Width	1530	1530	1530	1530	2121
Height	1545	1850	1500	1805	2291
Weight (kg)					
Nett	511	596	643	759	1214

Notes:
* To AS/NZS 3823 conditions
** Supply Airflow at Nominal Conditions
*** Noise Data measured to EN 12102-1:2017 - measured in decibels re 1 picowatt
**** Units comply with MEPS & or the requirements on the NCC

Econex OPA Specifications

econex
nex gen R32 inverter

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Model	OPA 820	OPA 970	OPA 1410	OPA 1710	OPA 2110
Total (Gross) Capacity kW*					
Cooling	80.7 (11.2~83.8)	92.5 (15.4~99.2)	145.7 (15.9~155.4)	169.7(13.9~177.2)	202.7(32.1~208.8)
Nett (Rated) Capacity kW*					
Cooling	78.4	88.9	140.2	164.2	193.8
Heating	79.1 (10.0~87.0)	88.2 (14.3~96.1)	142.1 (12.9~151.2)	170.7(14.8~181.8)	194.8(14.9~205.9)
SEER*					
TCSPF* (Cold/Mixed/Hot)	3.73/3.54/3.55	3.39/3.24/3.26	3.50/3.34/3.41	3.53 / 3.37 / 3.39	4.24/3.83/3.76
EER/COP*					
EER / AEER * Cooling	3.18 / 3.17	2.97 / 2.96	3.05 / 3.04	3.09 / 3.08	3.00 / 2.99
COP / ACOP * Heating	3.22 / 3.21	3.35 / 3.34	3.59 / 3.58	3.36 / 3.35	3.53 / 3.51
Power					
Power Supply	3 Phase 400 V a.c. 50 Hz + N + E				
Run Amps / Phase (A/ph.)	38/36/39	46/43/46	72/74/74	84 / 81 / 83	108/108/110
Unit Controllers					
Controller	UC8 (x2)		UC8 (x4)		
Ambient Operating Range					
Cooling / Heating (°C)	-10 ~ 50 / -10 ~ 25				

Model	OPA 820	OPA 970	OPA 1410	OPA 1710	OPA 2110
Compressor					
Type	Inverter x1, Fixed x1		Inverter x1, Fixed x3		
Refrigerant	R32				
Fans					
Indoor	EC Plug Fan x2		EC Plug Fan x4		
Outdoor	Inverter x1, Fixed x1		EC Axial x4		
Airflow (l/s)					
Nominal**	4400	4800	8100	8200	11000
Max.@2.5 m/s face velocity	5650	5800	8100	8900	11000
Noise Data***					
SPL @ 3 Metres (dBA)	71	76	66	76	73
Overall Dimensions (mm)					
Length	2898	2898	4500	4500	5000
Width	2150	2150	2325	2305	2300
Height	2258	2258	2348	2650	2648
Weight (kg)					
Nett	1270	1270	2064	2263	2577

Notes:
* To AS/NZS 3823 conditions
** Supply Airflow at Nominal Conditions
*** Noise Data measured to EN 12102-1:2017 - measured in decibels re 1 picowatt
**** Units comply with MEPS & or the requirements on the NCC

PROUDLY MADE IN AUSTRALIA

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