econex
nex gen R32 inverter

AIR COOLED

Econex Pro Packaged Units

PROUDLY MADE IN AUSTRALIA

ARBS Industry Awards WINNER 2022 PRODUCT EXCELLENCE AWARD
Temperzone – Econex R32 Inverter Air Cooled Package Units

temperzone
climate innovations

econex

nex gen R32 inverter

A New Level of Innovation in Humidity Control

OPA 820

10kW ~ 97kW 11.2kW ~ 88.3kW

OPA 970

13kW ~ 110kW 16kW ~ 102kW

OPA 1410

12.9kW ~ 181kW 11.8kW ~ 189kW

OPA 1710

14.1kW ~ 214.4kW 14.6kW ~ 205.8kW

OPA 2110

15kW ~ 244kW 27kW ~ 239kW

Heating Capacity

Cooling Capacity

A New Level of Innovation in Humidity Control

Econex Pro intuitively controls the space temperature and humidity whilst maintaining optimum efficiency.

High-Tech Game Changer

Able to operate with or without external intervention, **Econex Pro's** in-built Adaptive software reacts to its environmental surroundings, and changes its operation to continuously generate desired comfort outcomes. Put simply, it understands consumers' needs and reacts to prevailing conditions in order to meet them. And because it has the ability to follow patterns, **Econex Pro** can even choose setting options that correspond to certain weather-heat load combinations.

Designed to Impress

Designed exclusively using Temperzone's in-house R&D expertise, **Econex** represents a cutting-edge technology that strives to change the way sustainable air conditioning solutions are delivered.

Econex Pro have wide capacity ranges to easily and efficiently react to changing building heat loads as required. This makes for ideal use in a wide range of temperature and humidity-sensitive environments.

Supermarkets

Shopping Centres

Schools and Universities

Features

econex
nex gen R32 inverter

PROUDLY MADE IN AUSTRALIA

Intelligent Unit Controller
Provides several modes of operation including comfort and dehumidification. Turn Key / Stand Alone control

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

Variable Speed Fans
EC condenser fans provide greater efficiency and system control

EC Plug Fans
EC plug fans that precisely adjust airflow to change in static pressure

Inverter Compressors
Inverter compressors for wide capacity range and superior part load performance

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

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

Reheat Coil Option*
Integrated hot gas bypass reheat coil

Humidity Intelligence
Automatically selects operation modes to maintain comfort conditions

Wide Temperature Operating Range
From -10°C to +50°C ambient

Louvred Guards
Aesthetic guards protect the coil from damage

BMS
BACnet via TC/IP and Modbus over RS-485 or TC/IP available as standard

* 1410 to 2110 only

Econex Pro Packaged units (80.2kW - 207kW) R32

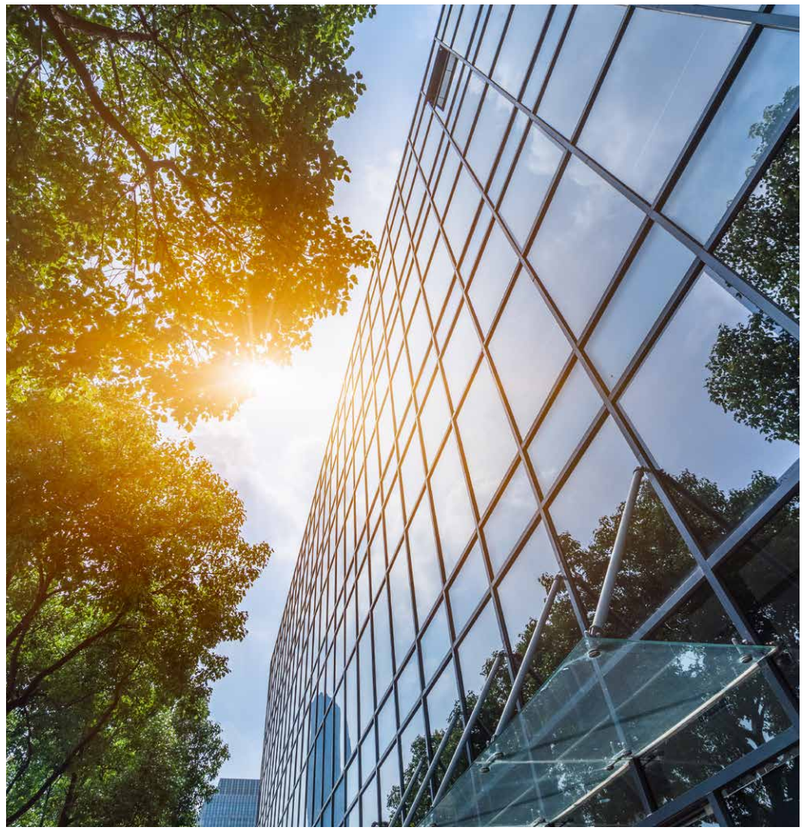
Lower Global Warming Potential Air Conditioning

Lower global warming potential

With a smaller refrigerant charge and a GWP of 675*, OPA Econex R32 refrigerant units result in a 78 - 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.

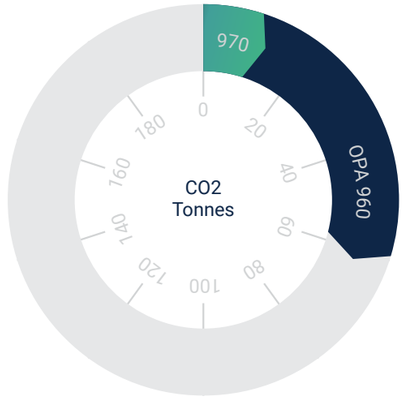


*AR4 Standard

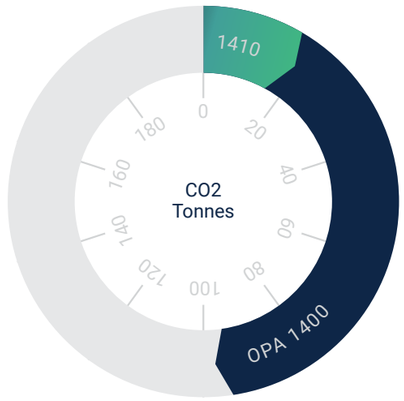
Potential Carbon Emissions attributed to refrigerant (CO_2 Tonnes)

Older Model

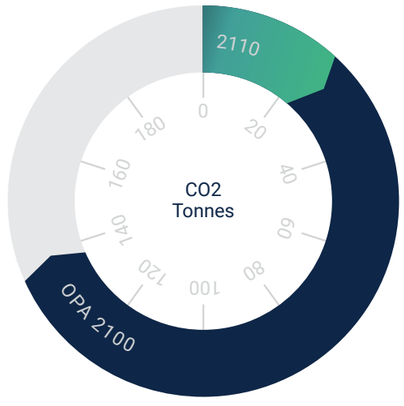
Econex



Reduced
78%
CO_2 Tonnes



Reduced
80%
CO_2 Tonnes



Reduced
81%
CO_2 Tonnes

Superior Comfort Control

Quick And Easy Set-Up

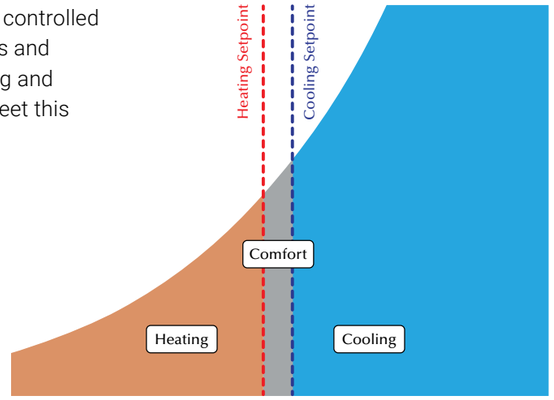
Pre-set optimisation allows for quick and easy set-up of OPA **Econex Pro** systems. Pre-programmed advanced control logic ensures the most effective and efficient operation out of the box.

Econex Pro Design Philosophy

Econex Pro sets itself apart by redefining system control with intuitive self-adjusting comfort modes. Basic heating and cooling control do not address apparent comfort levels within the space and unlike the **Econex Pro** are ineffective in minimising energy use.

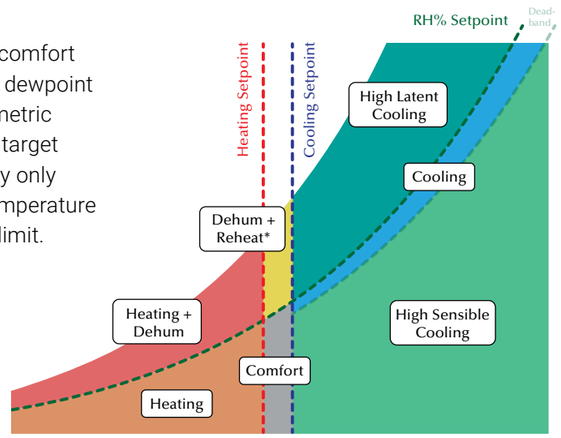
Traditional Control

Traditional systems are controlled to Temperature setpoints and singularly provide heating and cooling as required to meet this desired room condition.



Econex Pro Control

Econex Pro 7 modes of comfort are designed around the dewpoint levels across a psychrometric chart and are tailored to target precise comfort needs by only removing moisture or temperature within the comfort level limit.



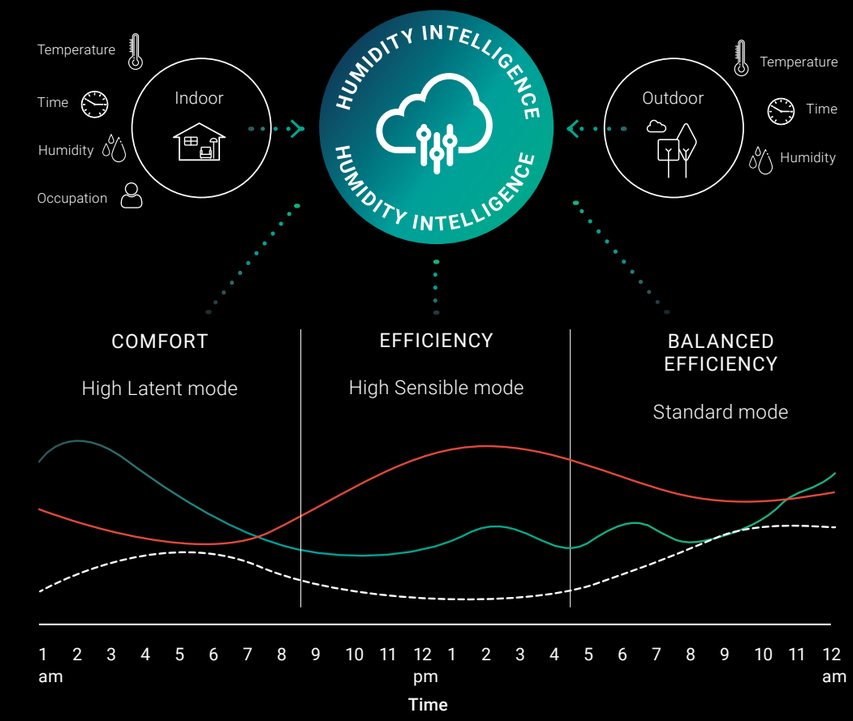
*Dehum + Reheat only available with optional reheat coil.

Econex Pro considers indoor and outdoor humidity levels and makes its own decisions by operating in different modes to satisfy setpoint conditions.

Autonomous Comfort Modes

- **Cooling – High Latent**
- **Cooling – High Sensible**
- **Cooling – Standard**
- **Cooling – Reheat ***
- **Heating – Dehumidification**
- **Heating – Standard**
- **Comfort Zone – Fan only**

* Only available with optional reheat coil fitted



The system automatically switches between modes as required. For example in hotter wetter months ‘Cooling – Reheat’ mode may operate from midnight until midday. As ambient conditions change and heat infiltrates the space the sensible heat load increases, during this period the system may transition to ‘Cooling – High Latent’ mode. In the afternoon when ambient conditions are at peak sensible heat load the system may initiate a change to ‘Cooling - Standard’ mode. The system modes continuously change based on environmental conditions thus maximising comfort and minimising energy consumption.

Seasonal Energy Efficiency

OPA Econex Pro, with multiple independent refrigeration circuits featuring inverter compressors and EC plug fans, operates to maximise part-load efficiency.

Absolute Autonomous Control

OPA Econex Pro provides accurate temperature and humidity control under any conditions through the precise control of evaporating and supply air temperature.

Utilising mulitple independent inverter compressor refrigeration circuits and advanced control logic enables **OPA Econex Pro** to continuously adjust it's operation across the spectrum of space heating, cooling and dehumidification requirements while maintaining optimum efficiency.

Total Cooling Seasonal Performance Factor (Commercial Cold Zone)

Extreme weather operation

Designed for the harshest conditions, these **OPA Econex Pro** units are designed to operate in ambient temperatures from -10°C to 50°C to ensure you're always comfortable, whatever the weather.

Inverter Compressors

Offering the ability to operate with extremely wide cooling and heating capacity ranges substantially reducing energy input at part load operation.

- Soft starting, using much less power at start up.
- Matching capacity to load avoids temperature fluctuation and reduces energy input power.
- **16:1** turn down ratio* saves energy
- Reduced amount of start/stop for long life operation.

* OPA 1410

Seasonal Energy Efficiency (SEER)

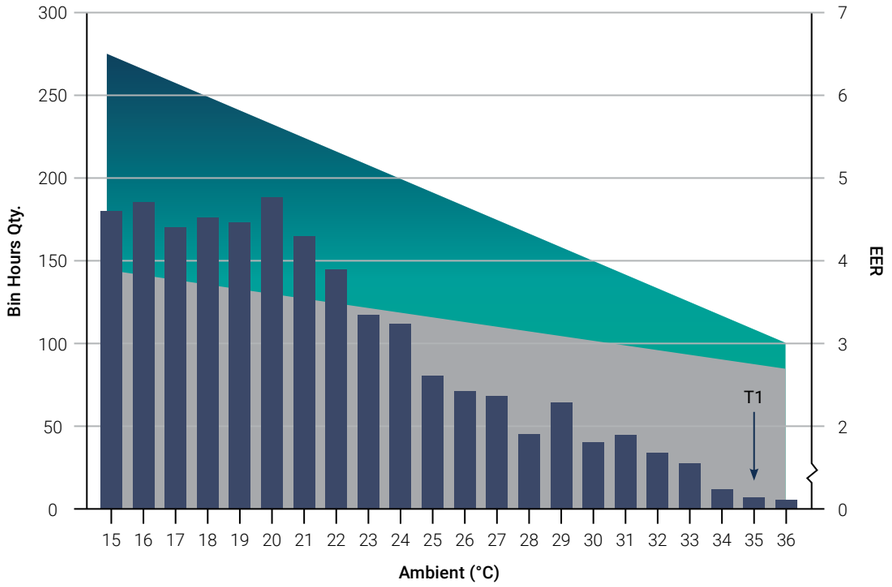
Superior seasonal performance
with Econex Pro Inverter technology.

Econex OPA 970
vs
ECO OPA 960
Commercial Cold Zone

EER OPA 970 Econex Unit

EER OPA 960 ECO unit

Climate Bin Hours – Cold Zone



OPA 970 Econex Pro - Inverter Compressors, EC Plug and EC Condenser Fans

OPA 960 ECO - Digital Compressors, EC Plug and 3 Speed Condenser Fans

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.

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 the Econex unit.

The OPA 970 Econex Pro unit experiences a much greater increase in efficiency (EER) than the OPA 960 ECO unit as the ambient reduces.

Total Cooling Seasonal Performance Factor

The OPA 970 Econex Pro unit, when compared to the OPA 960 ECO unit, has considerably higher seasonal energy efficiency factors.

OPA 960 ECO

OPA 970 Econex Pro

Energy Consumption - Annual Cooling MWh

MEPS Seasonal performance energy consumption for the OPA 970 Econex Pro shows considerable energy savings (kWh) compared with the OPA 960 ECO.

OPA 960 ECO

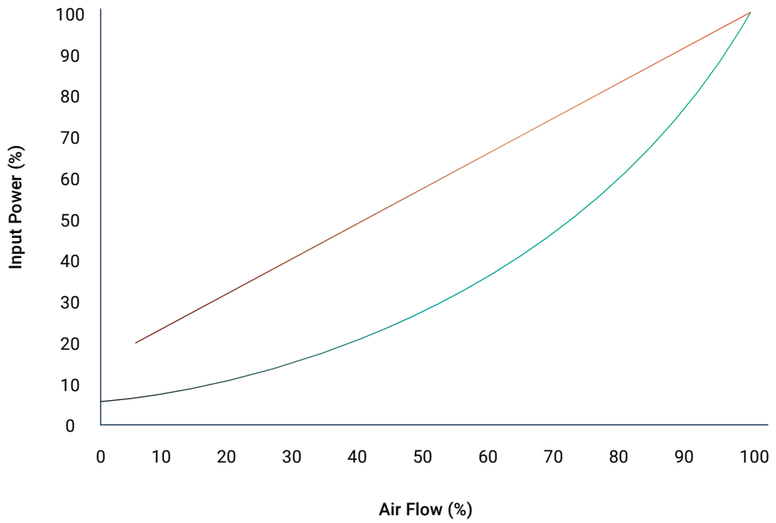
OPA 970 Econex Pro

Energy Saving Technology

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

EC Fan Technology

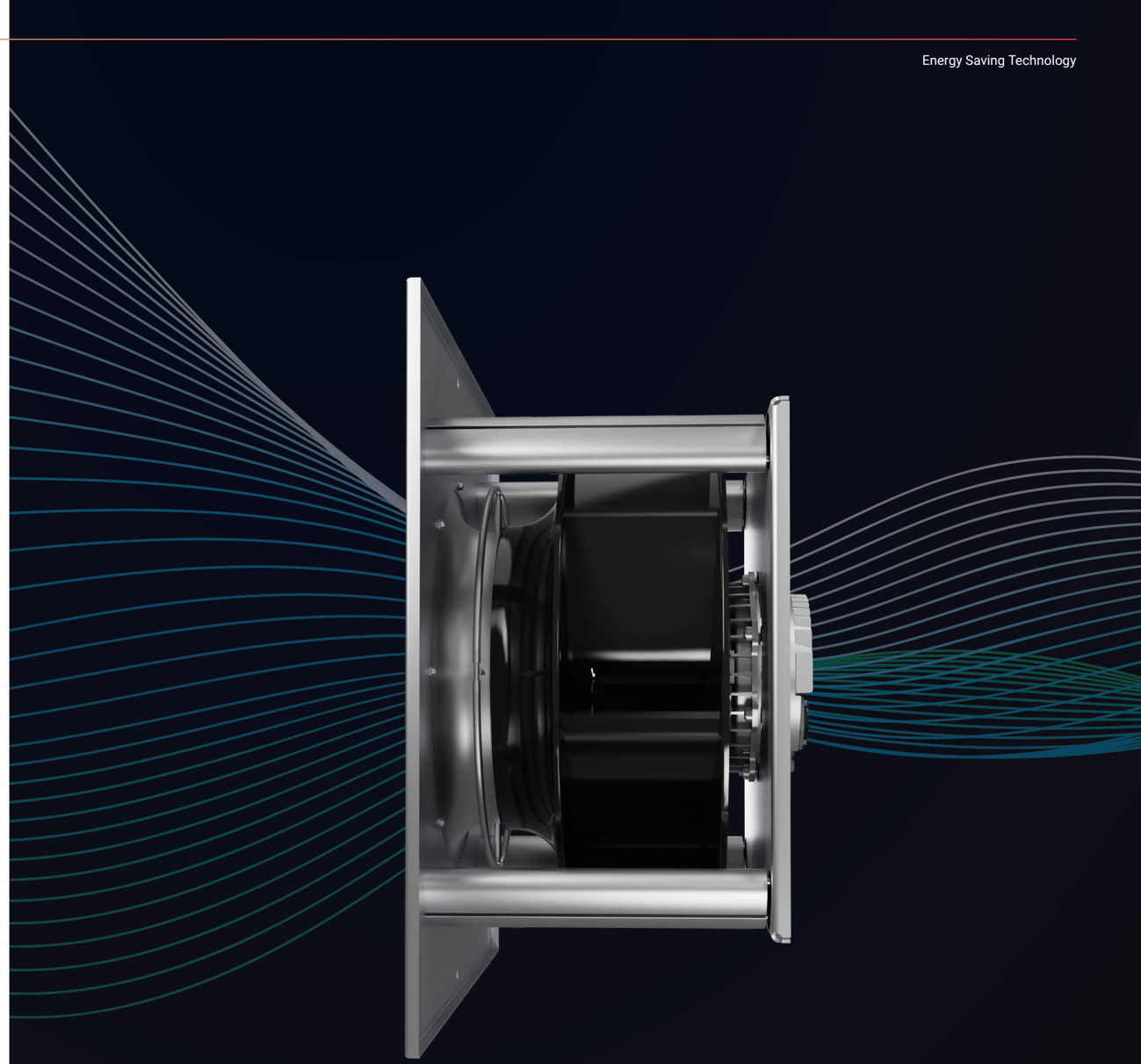
Our high-efficiency EC fan motors are up to 50% more energy efficient than Belt drive or AC motor alternatives and enable quiet operation with slow ramp-up and no sudden noise changes.



EC Condenser Fans

EC fans contribute to increasing the overall efficiency of an application. Keeping the refrigerant pressure constant (rather than having it rise and fall as fans switch on and off) has been found to reduce compressor loads. It also optimises efficiency keeping the compressor comfortably within it's operating envelope.

› 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 Plug Fans

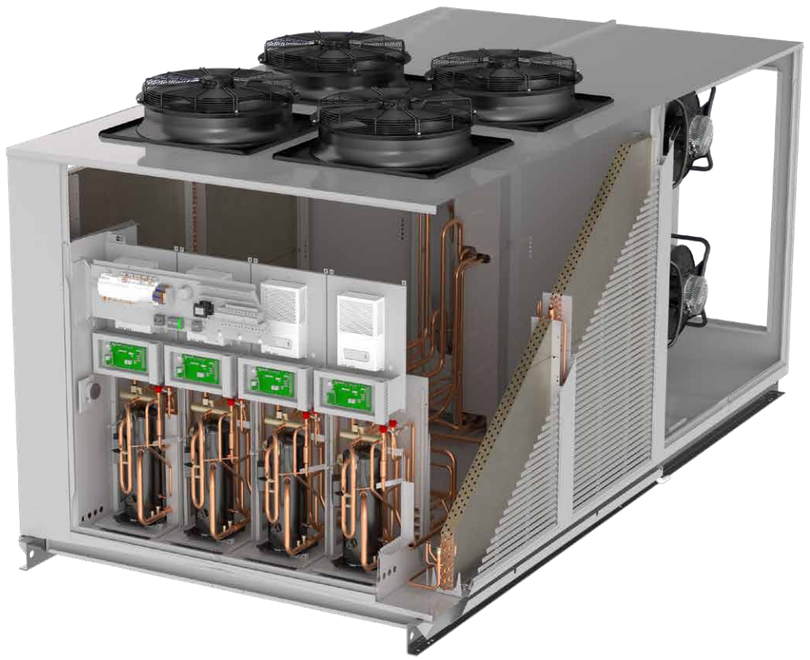
When it comes to controlling the fans accurately and efficiently, the unit's integrated electronics continuously monitors the static pressure and adjusts the speed accordingly. Fan speed can also be controlled via external signals via input or modbus. The fan speed and voltage can be read from the units internal controller for simple reference.

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

Reliability & Durability

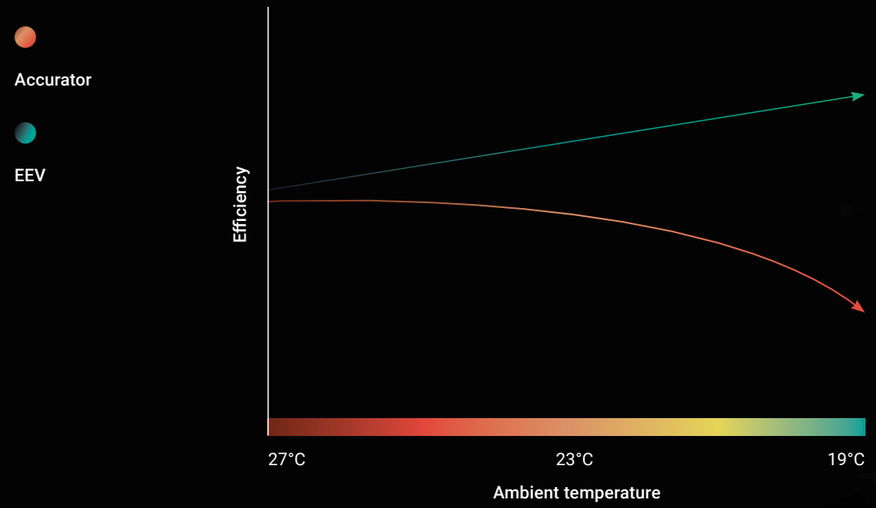
Econex Pro units are designed to be highly durable and suited to the harshest environmental conditions.

1. Highly corrosion resistant epoxy coated coils to suit harsh climate conditions
2. Marine grade pretreatment and polyester powder coated galvanised steel, inside and out
3. Deep and wide Indoor coil draintray with brass hex socket removal connection
4. Louvre Guards for added protection against severe weather, UV damage to coils & accidental contact
5. SKT coated screws provide a higher corrosion resistance than 316 stainless steel
6. Isolated compressor and electrical compartment for less noise and weatherproofing
7. Sloped outdoor section allows water from rain and de-ice to be drained from the unit
8. Outdoor section Drain tundishes with spigots for PVC pipe connections for remote drainage
9. Easy access hinged doors with door stays for all maintenance service areas



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.

Incorporated Adaptive Technology

With pre-programmed optimisation and in-built controller display, **Econex Pro** is designed for quick and easy set-up.

Advanced Controller

Incorporated Adaptive technology ensures that **Econex Pro** is flexible, versatile and extremely user-friendly. Full Unit Operation: Fully integrated controls that control every function of the unit.

Advanced System Control

- Inputs configurable for the majority of commercially available sensors. Room sensor supplied loose.
- Return and supply air sensors factory fitted.
- Outdoor air sensor option, for control of economiser actuators.
- All fans and compressors have motor information available via Modbus communications and on unit display.
- Ability to turn the supply fans off when there is no capacity demand.
- Refrigeration systems information available via display and optionally via BACnet and Modbus communications.
- Mixed air sensor input available or theoretically calculated.
- Indoor fan can be controlled to a constant speed or to a constant airflow using built in airflow measurement.
- Set back the room temperature during unoccupied periods to maintain space temperature to a wider range.
- Reduce the indoor fan speed during unoccupied times minimising energy use.
- Daily scheduled times for the unit's on/off operation can be programmed. *Daily scheduling can set up 4 events per day 7 days plus holidays.
- Individual time clock available to turn on night mode or unoccupied mode removing the need for external intervention. Independent of the 24/7 time clock.
- Control of outdoor air and return air dampers using enthalpy based algorithm. *Optional accessory.
- Night Mode, reduce noise levels when mode activated.

Control Innovation

Intelligent Humidity Control
Automatic system mode operation

Power Monitoring
Power monitoring of individual compressors and fans

RH & Temperature Measurement And Control
Tempering control during cooling & dehumidification

System Management
Oil and refrigerant management system

Adaptive Compressor
Control Compressor efficiency control

Sensor Inputs
Configurable for most commercial sensors

BMS Connectivity
Modbus or BacNet TCP/IP

Programmable
7 Day Programmable Time – Clock – Night mode

Protection
Multi level control & password protection. Mfg./Service/User

Service Interface Screen
Service Interface Screen with data log features and Alarms

Airflow
Adjustable Indoor Fan Airflow Set-point

Quick Start
Quick start-up user settings

Configurable Options

Econex Pro has configurable mechanical and control options for convenient inclusion in your project and application.

Economy Dampers

The advanced controller included as standard in the **Econex Pro** Series has a built-in function to control economiser dampers (external or factory fitted). A temperature and humidity sensor are fitted in both the return air spigot and the outdoor air inlet. Based on the measurements and current space conditions the controller decides which source to use to minimise power use. Control can be configured to either enthalpy (strongly recommended) or temperature.

Spill Air*

* OPA 1410 to 2110 only

A spill air control option is available and a built-in factory fitted option is available.

The built-in spill air option is only available as a bottom return air handling configuration. Supply air configurations are not affected and can be positioned to suit site requirements.

Used for applications where outside air is introduced into a closed environment that has minimal outside air migration. The spill air control modulates relief pressure in the A/C's return air chamber to prevent over pressurisation of the conditioned space.

The spill air damper is controlled to be opened proportionally to the fresh air inlet damper.

CO_2 Sensing

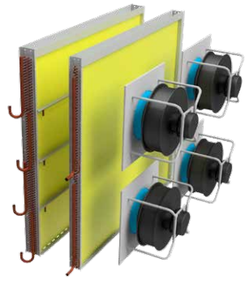
CO_2 sensing is available as an option and the unit will open dampers to allow the flow of more outdoor air to create higher quality indoor air conditions when the ppm drop below a pre-set level. The unit has a prioritisation system to determine when to open or close the outdoor air and spill air dampers based on the outdoor and space conditions.

After Hours

The **Econex Pro** Series offers plug and play compatibility with an aftermarket after hours pushbutton. Wire up a standard 3rd party button directly to the advanced controller in the unit to provide after-hours operation for a pre-configured time period.

Reheat*

* OPA 1410 to 2110 only

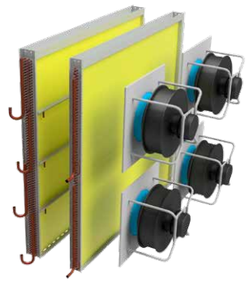


The **Econex Pro** Series has the option of in-built reheat coils for humidity control. This advanced reheat control is a fully integrated reheat system utilising a DX reheat coil and bi-polar modular reheat valves to provide artificial sensible heat, boosting moisture removal rates while maintaining high labels of comfort.

Modular Reheat Valve

A fully modulating reheat valve with 6,386 steps that self-calibrates combined with a supply air sensor allows for precise control over the delivered air when optional reheat coil is supplied

Heat Reclaim Coil



There are many applications where waste heat can be used to provide first stage heating for the conditioned space. An example of this is heat reclaim from the refrigeration racks in a supermarket. Instead of rejecting heat through an air-cooled heat exchanger the waste heat can be used with a water heat reclaim system provided by the HVAC contractor but integrated into our **Econex Pro** system.

The **Econex Pro** Series has the option of controlling a modulating water valve to provide capacity control for a water-based heat reclaim coil where the heat is provided from an external source i.e. refrigeration rack. The water-based heat reclaim coil and valve are not factory fitted and should be located in the supply air stream external to the unit.

Flexible Handing Options

Flexible handing configurations available to suit the application.

Standard OPA 820 - 2110 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

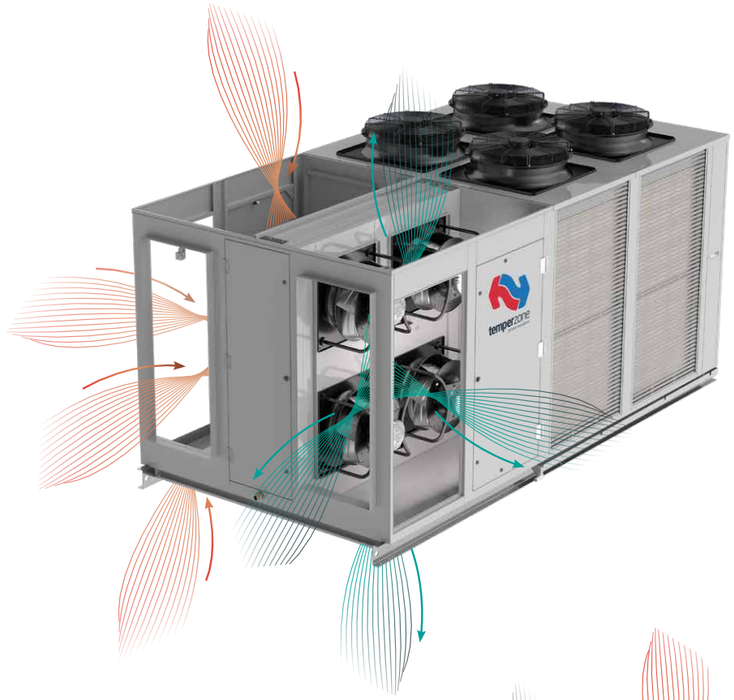
Configuration With Economiser

Return Air - With Economiser

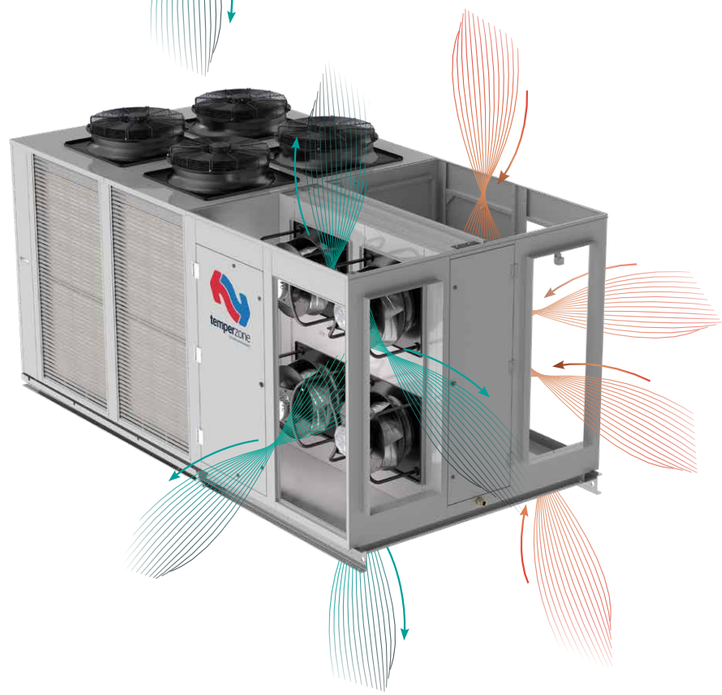
Supply Air	Top	Front	Down	Side
Top	•	•	•	
Front	•	•	•	
Down	•	•	•	
Side	•	•	•	

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
- Economy cycle control enthalpy
- Reheat coil
- Outdoor air sensor
- Temperature and humidity sensors
- CO_2 Sensor
- Averaging sensor module

Econex Pro Range
Technical Specifications

econex
nex gen R32 inverter

Model	OPA 820 PRO	OPA 970 PRO	OPA 1410 PRO	OPA 1710 PRO	OPA 2110 PRO
Total (Gross) Capacity kW*					
Cooling	11.2 ~ 88.3	16 ~ 102	11.8 ~ 189	14.6 ~ 205.8	27 ~ 239
Heating	10.0 ~ 97.0	13 ~ 110	12.9 ~ 181	14.1 ~ 214.4	15 ~ 244
Net (Rated) Capacity kW*					
Cooling / Heating	80.2 / 81.4	91.0 / 95.8	146 / 145	177.9 / 184.1	207 / 203
Energy Efficiency*					
EER / AEER *	3.15 / 3.14	3.04 / 3.03	3.24 / 3.22	3.07 / 3.06	3.07 / 3.06
COP / ACOP *	3.24 / 3.22	3.34 / 3.33	3.35 / 3.34	3.25 / 3.24	3.54 / 3.53
TCSPF (cold/mixed/hot)	5.18 / 4.67 / 4.51	4.53 / 4.14 / 4.04	4.78 / 4.33 / 4.21	5.38 / 4.80 / 4.60	5.32 / 4.81 / 4.49
HSPF (cold/mixed/hot)	2.84 / 3.00 / 3.06	2.67 / 2.71 / 2.74	3.71 / 3.97 / 4.16	3.12 / 3.37 / 3.52	3.15 / 3.36 / 3.47
Power					
Power Supply	3 ph. 400V ac 50Hz + N + E				
Run Amps / Phase (A/ph)	37 / 39 / 45 A	46 / 41 / 47 A	69 / 67 / 74 A	94 / 81 / 91	108 / 101 / 111 A
Max Running Amps (Total System)	55 / 60 / 66 A	74 / 74 / 77 A	116 / 111 / 121 A	132 / 123 / 132	158 / 153 / 159 A
Unit Controllers					
Master Controller	c.pCO				
Slave Controller	UC8 (x2)		UC8 (x4)		

Model	OPA 820 PRO	OPA 970 PRO	OPA 1410 PRO	OPA 1710 PRO	OPA 2110 PRO
System					
Compressors	2 x Inverter Scroll		4 x Inverter Scroll		
Number of Refrigeration Circuits	2		4		
Refrigerant	R32				
Ambient Operating Range (°C)	Cooling -10 to 50 / Heating -10 to 25				
Fans					
Indoor	EC Motor Plug (x2)		EC Motor Plug (x4)		
Outdoor	EC Motor Axial (x2)		EC Motor Axial (x4)		
Airflow (l/s)					
Nominal**	4,300	4,700	8,100	8,200	11,000
Overall Dimensions (mm)					
Length	2898	2898	4500	4500	5000
Width	2151	2151	2325	2305	2300
Height	2258	2258	2348	2650	2648
Weight (kg)					
Net	1270	1270	2064	2263	2577

Notes: * To AS/NZS 3823 conditions
** Supply Airflow at Nominal Conditions
*** Units comply with MEPS & or the requirements on the NCC

temperzone
climate innovations

temperzone.com

Australia
nswsales@temperzone.com
sasales@temperzone.com
qldsales@temperzone.com
vicsales@temperzone.com

New Zealand
nzsales@temperzone.com

Singapore
sales@temperzone.com.sg

TEM02/25

Australia

Sydney	02 – 8822 5700
Adelaide	08 – 8115 2111
Brisbane	07 – 3308 8333
Melbourne	03 – 8769 7600

Distributors

Newcastle	02 – 4962 1155
Perth	08 – 6399 5900
Launceston	03 – 6331 4209

New Zealand

Auckland	09 – 279 5250
Hamilton	07 – 839 2705
Wellington	04 – 569 3262
Christchurch	03 – 379 3216

Asia

Singapore	65 – 6733 4292
Shanghai	21 – 5648 2078