



Commercial

# TRI-CAPACITY

Performance and efficiencies through smart engineering.



*That's better. That's Actron.*



**ActronAir**

# ActronAir. Because Australia needs Australian air conditioning.

TRI-CAPACITY

The year 1984 saw Advanced Australia Fair become our National Anthem, the 1 dollar coin come into circulation and a small family air conditioning business open its doors. Today, ActronAir is a proud Australian company recognised for making world-class air conditioners. Well, it stands to reason. The team at ActronAir experience our harsh Australian conditions first hand, and our climate places demands on air conditioning not found in other parts of the world.

And that's why ActronAir's engineers have developed the most advanced air conditioning systems specifically for the unique and harsh Australian environment.

Made with a superior operating range of up to 50°C, and a host of innovative features, ActronAir's Tri-Capacity system is engineered to withstand the hottest and coldest conditions Australia can throw at it.

We know that particularly in the commercial world, things need to happen fast. You need service fast. You need parts fast. You need a solution fast. That's why when you call ActronAir, we'll be there for you there and then.



  
**More than  
a quarter of a  
million Aussies  
take comfort in  
ActronAir**

## Better energy efficiency, better performance, better reliability

ActronAir's unique Tri-Capacity technology, is designed and engineered in-house in our Sydney headquarters specifically for Australian conditions. Ideal for medium to large sized applications such as restaurants, banks, conference spaces, two-storey offices and cinemas, our Tri-Capacity delivers demonstrable benefits in energy efficiency, performance and ease of installation.



### A superior operating range made for Australia

Most overseas air conditioners are only designed with a maximum temperature range of 43°C to 46°C. The made-for-Australia Tri-Capacity operates up to 50°C. Big deal? Yes.

Given that commercial units are typically found on the roof in the direct sun, this is important. In the Australian sun, where other air conditioners can struggle and even shut down, it's better for business to have a system you can rely on.

Tri-Capacity not only operates at higher temperatures, it also performs at a higher capacity leading up to that peak temperature.

“ Nothing beats performing under extremes. Engineered for Australia, you can trust ActronAir to be there when you need it most. ”

**Mark 'Frosty' Winterbottom**  
V8 Supercars Champion & ActronAir Brand Ambassador

## A quiet achiever



### Axial outdoor fan

- User friendly wiring layout
- Two speed operation

## Three stages for more savings



### Unique compressor operation

- Designed for improved seasonal energy efficiency vs. traditional compressor configurations
- Tri-Capacity delivers 3 steps of cooling/heating (~33%, ~67% and 100% capacity)
- Designed for maximum durability and lower life cycle operating costs
- Compliant scroll compressors

## Stay in control



### Controls

- In-built controls solution
- BMS connectivity using the BACNET/MODBUS option
- Dual control capability for enhanced user access
- Enhanced service and maintenance features
  - Event alarm notification
  - Monitor system operation parameters
- Program control feature for set airflow requirements

## Filter forethought



### Filter cavity with in-built filter slides\*

- To suit 96mm wide pleated filters
- \* Only available on PKY series

## Aussie tough



### Louvred grille

The powder coated louvred grille guard allows for better airflow and protection in Australia's extreme weather conditions. It's mighty tough – engineered to withstand 1,000 hours of salt spray exposure under stringent Australian testing standards.



## Better choice



Low Profile



Split Ducted



Packaged

## Big on choice



### Other features

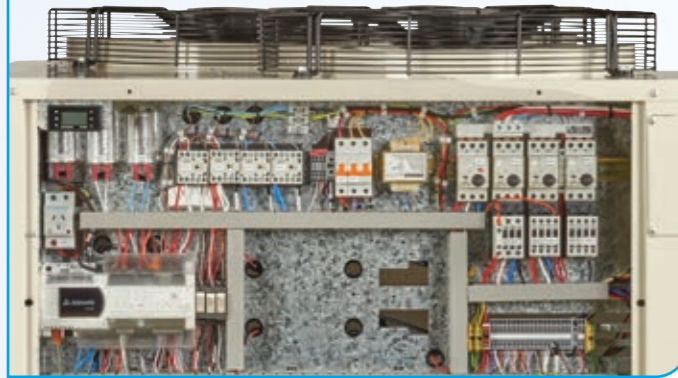
- Various return and supply air options available
- Optional economy kit with outside air and return air dampers and motors
- Optional CO<sub>2</sub> and humidity sensor for economy cycle
- Control multiple ActronAir systems on-site through a single touch screen interface with Group Control

## We've got you covered



### Electrical control board

- User friendly wiring layout
- Standard inclusions
  - Individual motor protection
  - Circuit breaker and thermal overload
  - DRED enabled (AS4755)



## Exact efficiency



### High efficiency EC plug fans

- High static up to 500Pa
- Eliminates belt and pulley drive losses and maintenance
- Backward curve non overloading for maximum durability
- Program control feature for setting airflow requirements

## Built to Perform



### Large heat exchangers

- Optimised refrigeration circuit
- Enhanced rifle bore tube
- Blue fin epoxy coated hydrophilic coil protection

## Ticks all the boxes



### Other features

- Low ambient cooling option to below 15°C
- TX valves for improved efficiency
- Foil face polyethylene insulation
- Two speed condenser fans
- In-built evaporator safety tray for EVY and ELY indoor units

# Better Engineered

## Engineering better outcomes

ActronAir's Tri-Capacity unit is designed and manufactured in Australia, for Australia.

That's important. Australia's climate puts demands on air conditioning not found in other parts of the world, particularly in summer. And that has meant our engineers have made design decisions accordingly.

For example, Tri-Capacity features high efficiency EC electronically commutated motors that don't generate as much heat and therefore don't have to force the system to work as hard to cool. It also helps Tri-Capacity be more reliable and less prone to breakdown.

From the componentry, to the magnets, coils and high performance outdoor fans, the material choice is high quality, reliable and made to last for the long term. That's better for business – yours and ours.

## Above and beyond Australian Standards

Tri-Capacity is engineered to not just comply with, but exceed Australian MEPS (Minimum Energy Performance Standards).

In fact, this approach is a source of company pride from the smallest single-room split systems to commercial systems the size of shipping containers. It's about doing the right thing by our customers and the environment, and we take that responsibility very seriously.



## High efficiency EC fan technology

EC plug fans deliver exact airflow requirements while minimising power usage, and are up to 50% more efficient versus traditional forward curve belt and pulley systems. This provides enhanced comfort and improved maintenance of system performance.

Key benefits include:

- Variable airflow range for improved efficiency and comfort
- Programmable control feature for setting airflow
- High static easily achieved (up to 500Pa)
- Significant time saved for on-site commissioning
- Eliminates belt dust and belt adjustment, providing a cleaner environment, and lowers operational maintenance cost
- Improved occupant comfort



# TRI-CAPACITY

# Better Comfort

## Comfort by degrees

Tri-Capacity offers superior comfort, a crucial factor for the success of businesses keen to draw customers in through the doors.

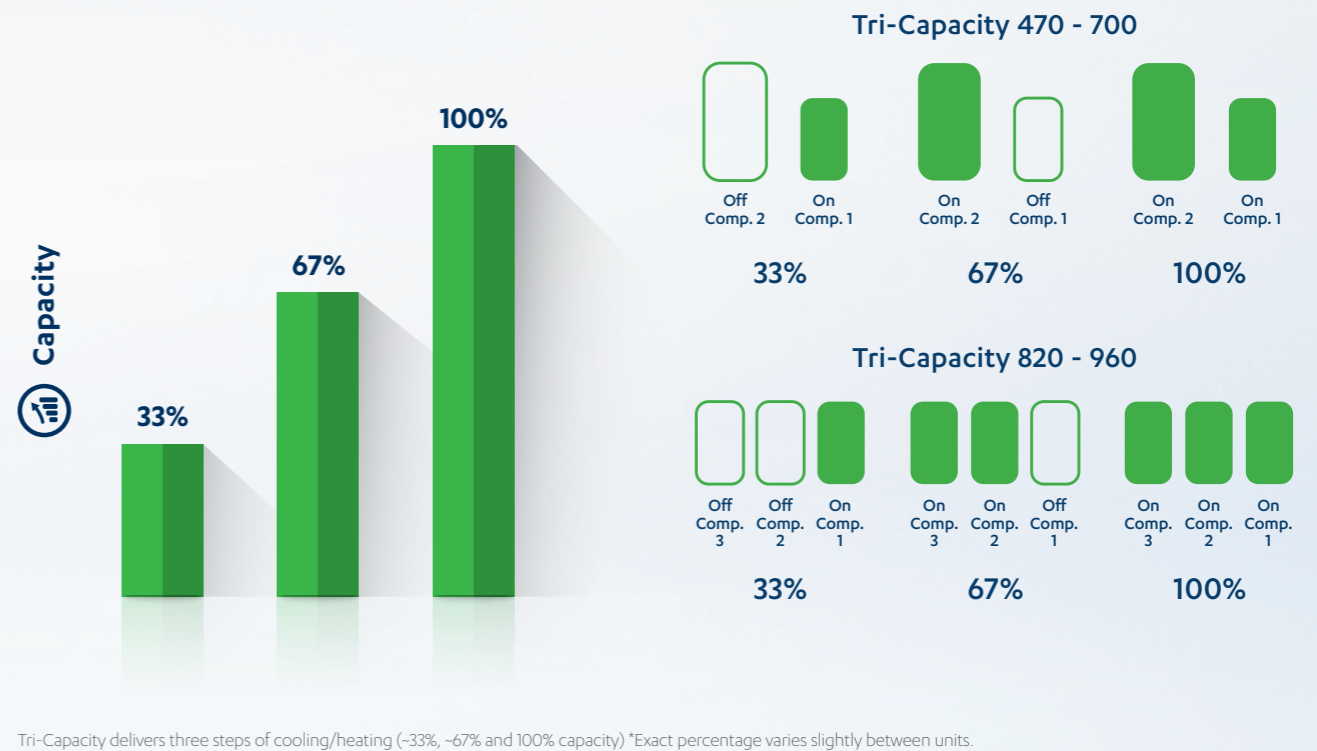
Tri-Capacity better matches the thermal load of a building, which research shows rarely reaches 100%. In fact, commercial buildings typically operate between 60% and 75% capacity for most of the time, and Tri-Capacity is simply better suited to conditioning these types of environments.

## Unique compressor technology

As its name indicates, Tri-Capacity offers a unique three step capacity configuration of 33%, 67% and 100%.

Tri-Capacity's unique compressor configuration also delivers improved seasonal energy efficiency through fewer adjustments, and also results in less cyclic degradation and more finely tuned occupant comfort.

## Unique Tri-Capacity operation



# Better Control

## Power and control is all yours

ActronAir is renowned for its controls, logic and electronics, and a lot of thought has gone into making controlling the Tri-Capacity flexible, comprehensive and user friendly. The system features fully integrated factory-fitted controls, eliminating the need for the added complexity of third party controls.

And while control of comfort, energy efficiency and performance is available at the touch of a button, there's more it can do with the following features:

- Configurable temperature sensors
- BMS compatibility to integrate with most MODBUS and BACNET operating systems
- 3rd party web browsing with BACNET and MODBUS
- Fault diagnostics
- User friendly factory fitted LCD interface
- Maintenance and service activities are enhanced with a 100-event register
- Dedicated input for remote stop/start and fire alarms
- 7/365 day time clock scheduler with programmable operating times (two on/off cycles per day)
- 12 special event days
- Secondary optional remote LCD user interface
- Discharge line temperature safety
- HP & LP safety
- Password protected service manager
- Automatic daylight savings change over
- Non-volatile memory



CP05 interface



CM100 control



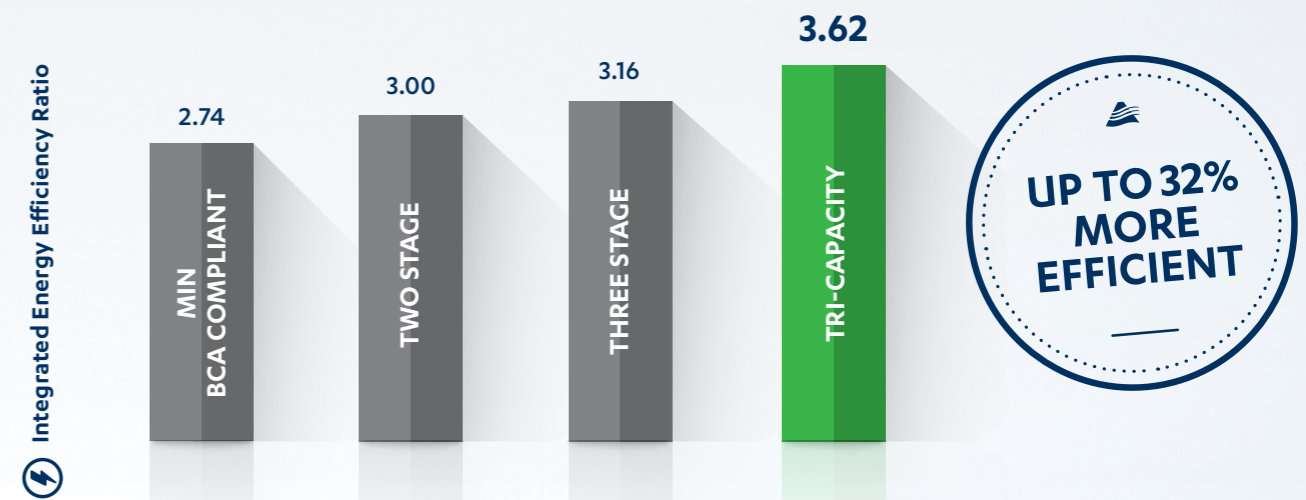
Optional CL01 interface

# Better Energy Efficiency

## Significant energy efficiency for a more comfortable bottom line

Tri-Capacity delivers superb energy efficiency with an IEER, or **Integrated Energy Efficiency Ratio**, of **3.62\*** – up to 32% more efficient than the minimum BCA compliant system. It also surpasses ASHRAE 90.1, one of the most recognised standards for building energy efficiency in the USA. That can make a huge difference to long term energy costs as the following real life examples demonstrate.

### IEER technology comparison



\*IEER of 3.62 achieved on PKY620T. \*IEER based on AHRI 340/360 clause 6.2.2.

## Case Study 1: Commercial premises, Richmond NSW

Energy modelling was conducted from 6am to 9pm for seven days in a commercial premises in Richmond, on the outer fringes of Sydney. The technologies compared were:

- Minimum BCA Section J5.4 Compliant – 1 stage fixed speed AC belt drive
- Two stage fixed speed with AC fan motor and belt drive
- Three stage fixed speed with AC fan motor and belt drive
- Tri-Capacity – Three stage fixed speed with EC Plug Fan

Over a one year period, modelling for energy consumption was calculated for each system. Tri-Capacity was found to be **up to 42% more efficient** than minimum BCA requirements. Based on an electricity price of 15c per kW/h and the cooling energy consumption, this translates to **a saving of \$2,200 per year** compared to the BCA minimum requirement, and **\$1,566 per year** compared to two stage fixed speed AC fan motor and belt drive technology.

## Case Study 2: Retail big box store, Brisbane QLD

In 2014, independent field testing and energy analysis was conducted in two 'big box' retail stores in Rocklea and Browns Plains, located 12 km apart. The testing compared each store's packaged unit technologies:

1. Tri-Capacity technology
2. Two stage fixed speed AC fan motor and belt drive technology

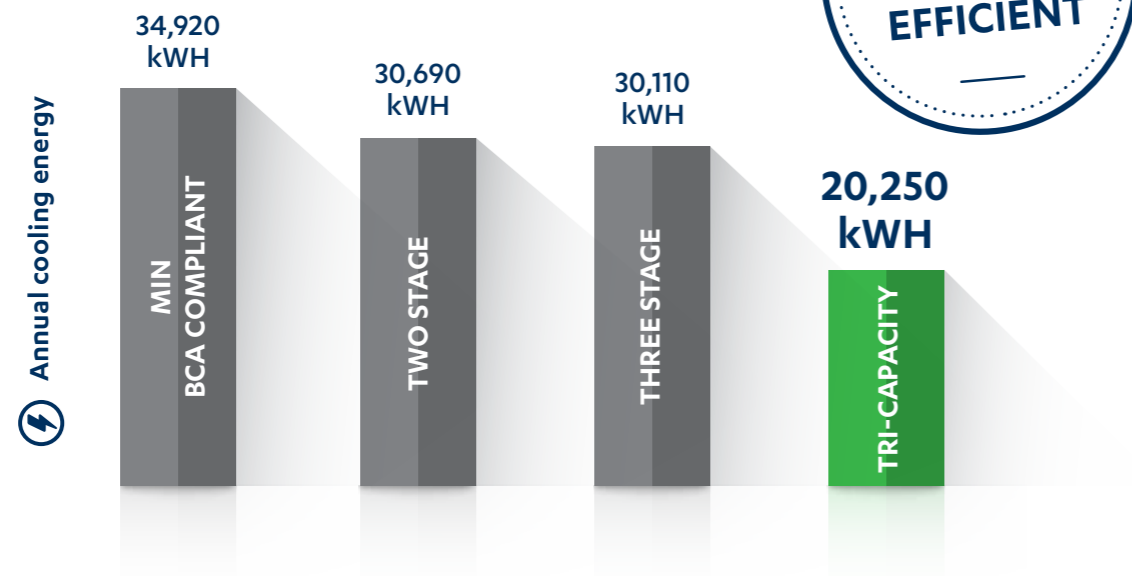
Over a 43 day period, total energy consumption savings of 31% was observed for Tri-Capacity. On a daily basis, energy consumption savings of 10% to 50% were achieved.

Using regression analysis and weather data for the region, Ecosave, an independent energy company, projected annual energy consumption savings of up to 37% versus conventional two stage fixed speed AC fan motor and belt drive technology.

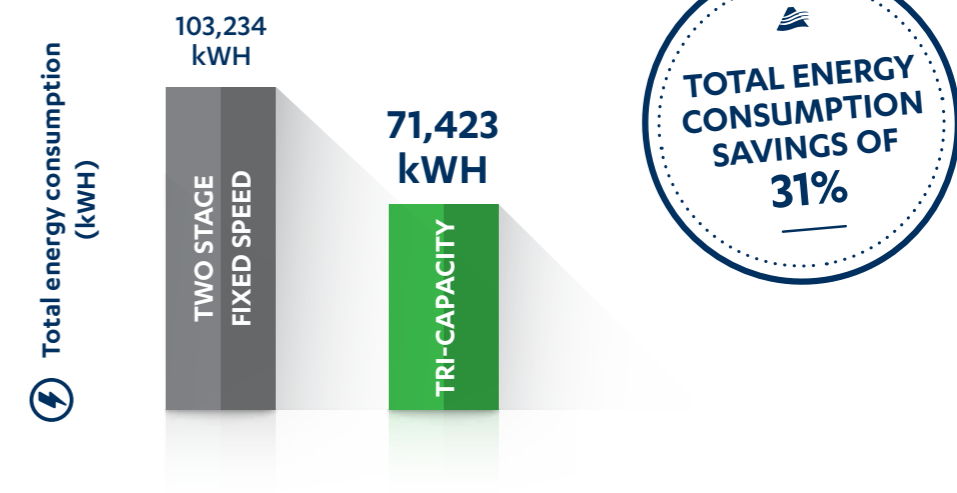
Over a 15 year lifecycle this equates to a projected saving of \$407,891, based on \$0.15/kWh.

	Browns Plain Store	Rocklea Store
Technology	Two stage fixed speed AC technology	Tri-Capacity
Floor area m <sup>2</sup>	7,515	8,459
Number of units	10	11
Floor area per unit (m <sup>2</sup> unit)	752	769

### Annual cooling energy consumption technology comparison



### Total energy consumption technology comparison



## Flexibility and tailored thinking for your unique project

Tri-Capacity technology has a great degree of flexibility. Our engineers are based here in Australia, so we can often apply some lateral thinking to achieve great results under challenging circumstances. We're committed to working together with businesses so please talk to us about your particular project requirements.

## Better Installation

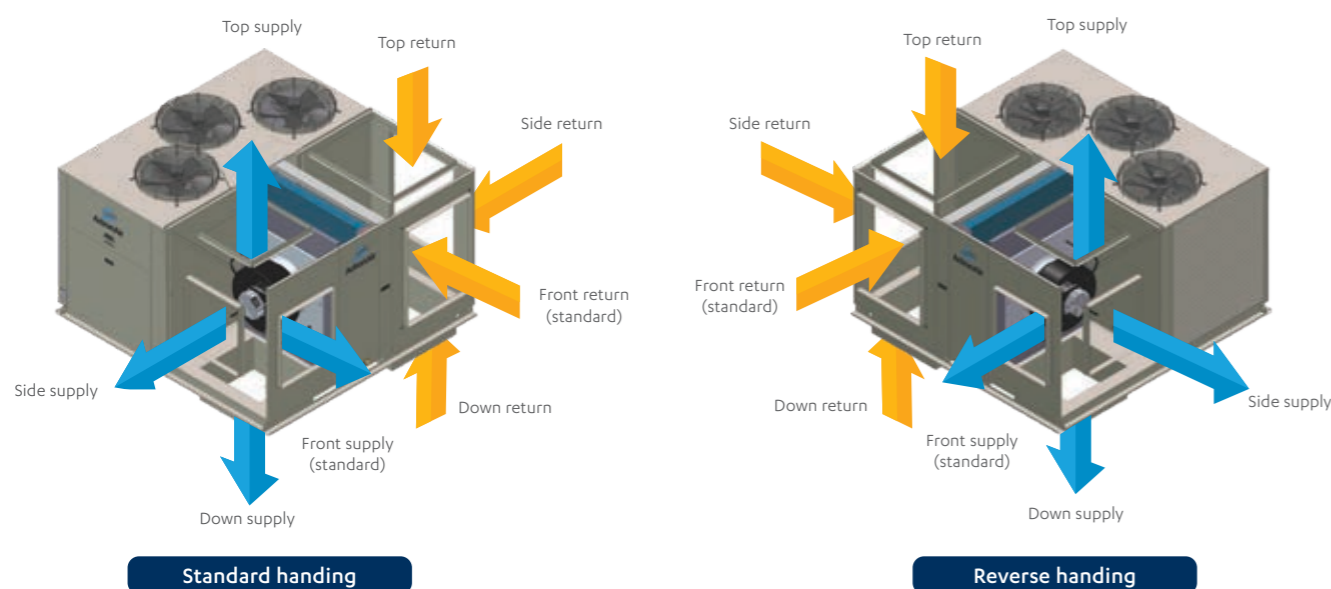


### Installation & configuration benefits

Flexible and configurable, Tri-Capacity is superbly installation-friendly. With up to 32 combinations of supply and return air connections, the Tri-Capacity series has the flexibility to accommodate most site ductwork requirements.

Other benefits include:

- Multiple handing options to suit most applications.
- Outside air can be introduced manually or automatically with optional dampers, to comply with the Building Code of Australia (BCA).



## Better Service

### Service and parts, where you need it, when you need it

A great benefit of ActronAir, right across our range, is that parts are available off the shelf, here in Australia.

We know that waiting for weeks for a part to come from overseas is simply bad for business, let alone having to talk to someone overseas to order it. Being locally based and proudly service oriented, we've always gone that extra mile to provide prompt and friendly service to our customers all over Australia.

### Technicians will think it's their birthday, and so will you

The Tri-Capacity control interface makes it easy to access system status information such as discharge line and set point temperature.

Tri-Capacity also eliminates the maintenance and service associated with belt and pulley driven systems. This results in improved airflow accuracy and reduced maintenance costs on-site.

So instead of a maintenance job that could take all day, adjusting the airflow can take mere minutes.



### Don't just take our word for it

When we design our products, we don't do it with the goal of receiving awards in mind. Instead we choose to focus on producing the best products possible, designed to suit our unique conditions while delivering reliable, energy efficient performance.

However, we are always pleased when any of our products achieve industry recognition. We believe in our products and the performance they provide, but it's always nice when those who know our industry best agree with us. And it's no different with Tri-Capacity, which over time has attracted its fair share of recognition from the HVAC industry, in particular for its strong Innovation and Sustainability credentials.



2012 AIRAH Awards  
Excellence in Innovation  
Finalist



2013 AIRAH Awards  
Excellence in Sustainability  
Finalist





# Technical Specifications

## Package Unit Tri-Capacity 47-100kW (Three Phase)

Technical Information							
PACKAGE MODEL		PKY470T	PKY540T	PKY620T	PKY700T	PKY820T	PKY960T
<sup>1</sup> Total (Gross) Capacity (kW) (AS/NZS3823.1.2)	Cooling	47.00	53.50	63.00	73.13	82.50	100.00
	Heating	46.00	51.50	60.00	68.80	80.00	94.10
Nett (Rated) Capacity (kW) (AS/NZS3823.1.2)	Cooling	45.77	51.85	60.80	70.30	80.04	97.00
	Heating	47.37	53.20	62.47	72.00	82.75	97.50
Input Power (kW) (AS/NZS3823.1.2)	Cooling	15.40	17.57	20.50	24.16	27.21	32.51
	Heating	14.16	16.20	20.15	22.40	24.55	27.26
<sup>2</sup> EER Rated (AS/NZS3823.1.2)	Cooling	2.97	2.95	2.97	2.91	2.94	2.98
	Heating	3.35	3.28	3.10	3.21	3.37	3.58
<sup>3</sup> COP Rated (AS/NZS3823.1.2)							
Power Supply (V / Ph / Hz)		400 - 415V / 3Ph + N / 50Hz					
Rated Load Amps (AS/NZS3823.1.2)		28.0	31.0	39.2	45.1	50.6	60.0
Full Load Amps (AS/NZS3823.1.2)		40.8	44.3	52.1	58.7	67	79.9
<sup>4</sup> Circuit Breaker Amps		50.0	50.0	63.0	80.0	80.0	100.0
IP Rating		IP44					
Compressor	Type / No. per Unit	Compliant Scroll / 2			Compliant Scroll / 3		
	Starting Method	D.O.L.					
No. Refrigeration Circuits/No. Capacity Stages (Capacity range)		2 / 3 (-33%, 66%, 100%)			3 / 3 (-33%, 66%, 100%)		
Refrigerant		R410A					
Fans (Type x Number per unit)	Outdoor	Axial Low Noise / 6 Pole External Rotor / Direct Drive x 3					
	Indoor	Variable Speed ECM Direct Drive Backward Curve Plug Fan x 1 (470-700 Models), 2 (820 and 960 Models)					
Airflow Range Indoor (l/s)	Maximum	2900	3300	3900	4100	4800	6000
	Nominal	2400	2700	3200	3600	4000	5000
	Minimum	1900	2100	2500	2800	3200	4000
External Static Pressure (Pa) at:	Maximum Airflow	305	125	155	75	410	100
	Nominal Airflow	500	390	410	270	500	365
Nominal Unit Dimensions (mm)	Depth	2305			2250		
	Height	1465			1695		
	Width	2365			2920		
<sup>5</sup> Nominal Weight (kgs)		836	853	937	964	1263	1350
<sup>6</sup> Sound Pressure Level (dBA)	Outdoor (low/high fan)	59 / 64		60 / 65		61 / 66	
	Indoor (low/high fan)	76 / 81		77 / 82		78 / 83	
<sup>7</sup> Sound Power Level (dBA)							
MEPS Compliant		Yes	Yes	Yes	BCA Compliant	BCA Compliant	BCA Compliant
<sup>9</sup> Demand Response Capability (AS4755.3)		Capable					

Unit Features							
Tri-Capacity 33% 66% 100% Capacity	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Full Factory Charged with R410A Refrigerant	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Louvered Outdoor Coil Guard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
External Stainless Steel Screws (Outdoor Unit Only)	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Blue Epoxy Coated Coil Fin Protection (Indoor & Outdoor Coils)	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Foil Faced Polyethylene Insulation (Indoor Unit)	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Indoor Unit Integral Fan Coil Safety Tray - Included	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Return Air Filter Rails Fitted	Standard	Standard	Standard	Standard	Standard	Standard	Standard
<sup>9</sup> Demand Response Capability (AS4755.3)	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Low Ambient / High Static EC Outdoor Fans (V-Option)	Optional	Optional	Optional	Optional	Optional	Optional	Optional

Air Handling Configurations							
F- Front Discharge	Standard	Standard	Standard	Standard	Standard	Standard	Standard
T- Top Discharge	Optional	Optional	Optional	Optional	Optional	Optional	Optional
S- Side Discharge	Optional	Optional	Optional	Optional	Optional	Optional	Optional
D- Down Discharge	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Reverse Air Handling	Optional	Optional	Optional	Optional	Optional	Optional	Optional

Control Options and Features							
PACKAGE MODEL		PKY470T	PKY540T	PKY620T	PKY700T	PKY820T	PKY960T
CPOS Control Interface with LCD Display for System Operation		Standard	Standard	Standard	Standard	Standard	Standard
Automatic / Manual Operation		Standard	Standard	Standard	Standard	Standard	Standard
7 Day Programmable Time-Clock		Standard	Standard	Standard	Standard	Standard	Standard
365 Day Time-Clock With 12 Special Days		Standard	Standard	Standard	Standard	Standard	Standard
Compressor Discharge Temperature Control		Standard	Standard	Standard	Standard	Standard	Standard
Adjustable Indoor Fan Airflow Setpoint		Standard	Standard	Standard	Standard	Standard	Standard
Indoor Coil Anti-Freeze Protection		Standard	Standard	Standard	Standard	Standard	Standard
Return Air Offset		Standard	Standard	Standard	Standard	Standard	Standard
High and Low Pressure Protection		Standard	Standard	Standard	Standard	Standard	Standard
Alarm Fault Data Logger		Standard	Standard	Standard	Standard	Standard	Standard
BMS 485/TCP-IP Compatibility (accessory)		Optional	Optional	Optional	Optional	Optional	Optional
CPOS/CP10 Control Interface (Available as Dual Control Option)		Optional	Optional	Optional	Optional	Optional	Optional
CL01 7-Day Programmable Control Interface (BCA Compliant)		Optional	Optional	Optional	Optional	Optional	Optional
CO <sub>2</sub> Sensor for economy cycle (accessory)		Optional	Optional	Optional	Optional	Optional	Optional
Humidity Sensor for economy cycle (accessory)		Optional	Optional	Optional	Optional	Optional	Optional
Group Control Interface and Controller (accessory)		Optional	Optional	Optional	Optional	Optional	Optional

Variations							
E- <sup>8</sup> Economy Starter Kit*		Optional	Optional	Optional	Optional	Optional	Optional
G- <sup>8</sup> Auto Outside Air Kit		Optional	Optional	Optional	Optional	Optional	Optional
H- <sup>8</sup> Manual Outside Air Kit		Optional	Optional	Optional	Optional	Optional	Optional
K- Additional Full Coil Coat Protection (Outdoor Coil)		Optional	Optional	Optional	Optional	Optional	Optional
L- Additional Full Coil Coat Protection (Indoor Coil)		Optional	Optional	Optional	Optional	Optional	Optional
U- Low Ambient +5°C		Optional	Optional	Optional	Optional	Optional	Optional
V- EC Motor Low Ambient/High Static Condenser Fans - Up to 150Pa		Optional	Optional	Optional	Optional	Optional	Optional
W- Three-Phase Sequence Protection Relay		Optional	Optional	Optional	Optional	Optional	Optional
Z- Compressor 3-Phase Soft Starter (Outdoor Unit Only)		Optional	Optional	Optional	Optional	Optional	Optional
Compressor Sound Jacket (as requested)		Optional	Optional	Optional	Optional	Optional	Optional
Weather Hood for outside air (accessory)		Optional	Optional	Optional	Optional	Optional	Optional

Field Information							
Refrigerant Factory Charge -(g)		4600 & 8800	5800 & 12,000	7200 & 12,700	8300 & 12,800	8,300 (each)	11,000 (each)
For 6Q1 Models - (Crt #1 & Crt #2), For 3Q1 Models (each Compressor)							
Condensate Drain Connection - Size/Type	Indoor Section	25.4 mm (1") Ø BSP Female Thread				31.8 mm (1-1/4") Ø BSP Female Thread	
	Outdoor Section	25.4 mm (1") Ø BSP Socket				31.8 mm (1-1/4") Ø BSP Socket	
Air Duct	Supply Duct H x W - (mm)	650 x 580				1200 x 600	
	Return Duct H x W - (mm)	900 x 700				1200 x 600	

\* Outside Air Damper available on the LHS or RHS only. Return Air Damper available on the front LHS or RHS only.

### Foot Notes 1-9

- Based on unit rating excluding indoor fan kW.
- EER Rated = Energy Efficiency Ratio (Rated Capacity Cooling / Rated Input Cooling).
- COP Rated = Coefficient of Performance (Rated Capacity Heating / Rated Input Heating).
- Refer to AS/NZS 3000 'Australian/New Zealand Wiring Rules' for more details.
- Refer to Catalogue Unit Weight Distribution Guide section for details of weight points.
- Sound Pressure Level at 3m distance is determined as the measured sound pressure at 3m perpendicular to the coil side of the condenser.
- Determination of Sound Power Levels of Noise Sources, AS1217.2 - Precision Methods for Broad-Band Sources in Reverberation Rooms.
- Return air sensor needs to be relocated by installer. Specific to site requirements.
- When Demand Response capability is chosen, the air conditioner will fully comply with AS4755.3 in the following modes: DRM 1, 2, 3.

### Important Notes:

- The Local Electricity Supply Authority may require limits on - starting current, running current and voltage drop, please check prior to purchase.
- When the outdoor temperature exceeds the rated conditions, the cooling/heating capacities may decrease the rated nett values.
- Specifications subject to change without notice.

### Rated Conditions:

Cooling: 35°C DB Outdoor / Air Entering Indoor 27°C DB, 19°C WB  
Heating: 7°C DB, 6°C WB Outdoor / Air Entering Indoor 20°C DB

### Warranty:

For full terms and conditions of ActronAir warranty, please refer to warranty terms document - [www.actronair.com.au](http://www.actronair.com.au)





# ActronAir

*That's better. That's Actron.*

[actronair.com.au](http://actronair.com.au)

1300 522 722