



How ActronAir and C & S Air Conditioning helped Printcraft
reduce their HVAC power consumption by 80%.

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Ecosave has been engaged by ActronAir to conduct the measurement and verification for the performance comparison of two roof top packaged air conditioning (AC) units installed at 37 College Street, Hamilton QLD 4007, which is tenanted by Printcraft.

The objective of this report is to compare the electricity consumption measured from 1st March 2020 to 30th June 2020 by two Onset EG4115 data loggers, both serve the Printcraft printing workshop area. the two packaged units are summarised in Table 1.

Brand	Model No	Cooling Capacity (kW)	Input (kW)	Serve area	Condition
APAC	P096AHR9BD	94.04	29.02	Printcraft printing workshop	Old
ActronAir	PKY960T	92.96	32.54	Printcraft printing workshop	New

Table 1: Compared two AC units summary

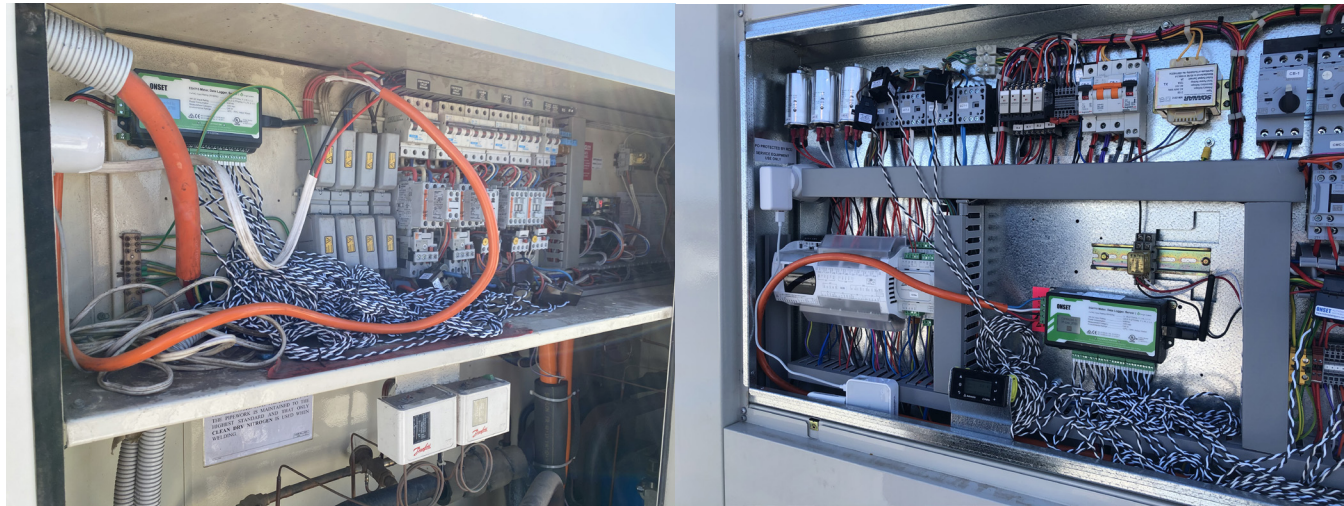


Photo 2: Energy Loggers Installed on APAC and ActronAir Unit

What did the review find?

- This report details the comparison result during the measured period. The APAC unit consumed 31,389 kWh of electricity from 1st March 2020 to 30th June 2020, while ActronAir unit consumed 5,634 kWh of electricity during the same period.
- This equates to approximately 82% savings during this period.

82% saving in HVAC energy consumption during the testing period

Reduction in HVAC consumption.

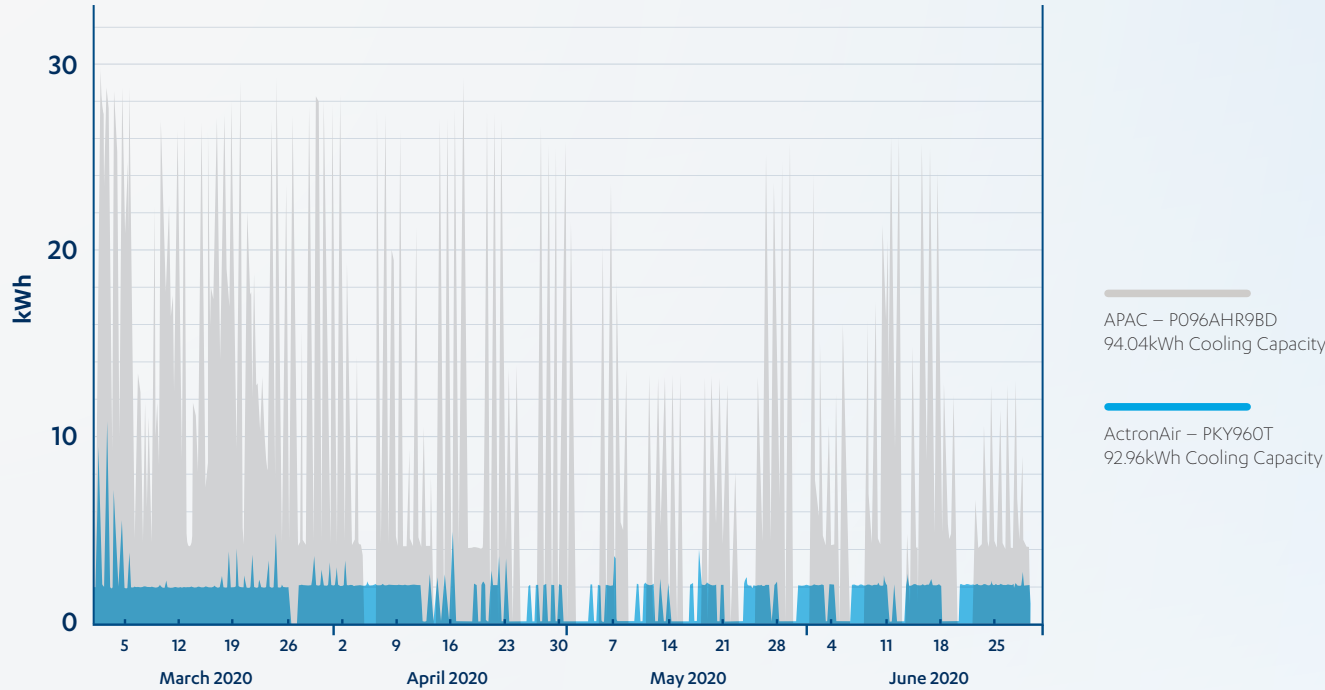
Both units performance graphs are shown below. The graphs indicate ActronAir unit consumed much less electricity than APAC unit during March to June 2020 period. The third-party AC operator confirms that both units were operating in the same area side by side, both set to 24°C, and run times were the same during logging period. One of the reasons is that Actron air unit has a better performance in regulating its operation and reducing frequent cycling from the smart control function. More reasons for this are given in section 3.4 Trial Limitations.

Competitor Electricity Operational Cost*	\$3,026.29
ActronAir Electricity Operational Cost*	\$592.38
Total Savings*	\$2,433.91

*During testing period of 12th February 2020 to 1st July, 2020.

The new ActronAir HVAC equipment delivered a \$2,433.91 saving during the 139 day period

AC Performance Graphs from Online Energy Loggers



APAC – P096AHR9BD
94.04kW Cooling Capacity

ActronAir – PKY960T
92.96kW Cooling Capacity

Comparing Energy Consumption

Total Energy Consumption Measurement

Table 2 and Figure 3 summarize the monthly measurement results for two AC units.

Start Date	End Date	Days	APAC AC Electricity Consumption (kWh)	ActronAir AC Electricity Consumption (kWh)	ActronAir AC % Savings	Cooling Degree Days CDD (Basepoint 18.5°C)
1-Mar-2020	31-Mar-2020	31	13,438	2,180	84%	163
1-Apr-2020	30-Apr-2020	30	7,358	1,276	83%	120
1-May-2020	31-May-2020	31	4,219	863	80%	39
1-Jun-2020	30-Jun-2020	30	6,374	1,315	79%	21
Total			31,389	5,634	82%	

Table 2: Total Consumption Measurement

APAC and ActronAir Monthly Consumption with CDD

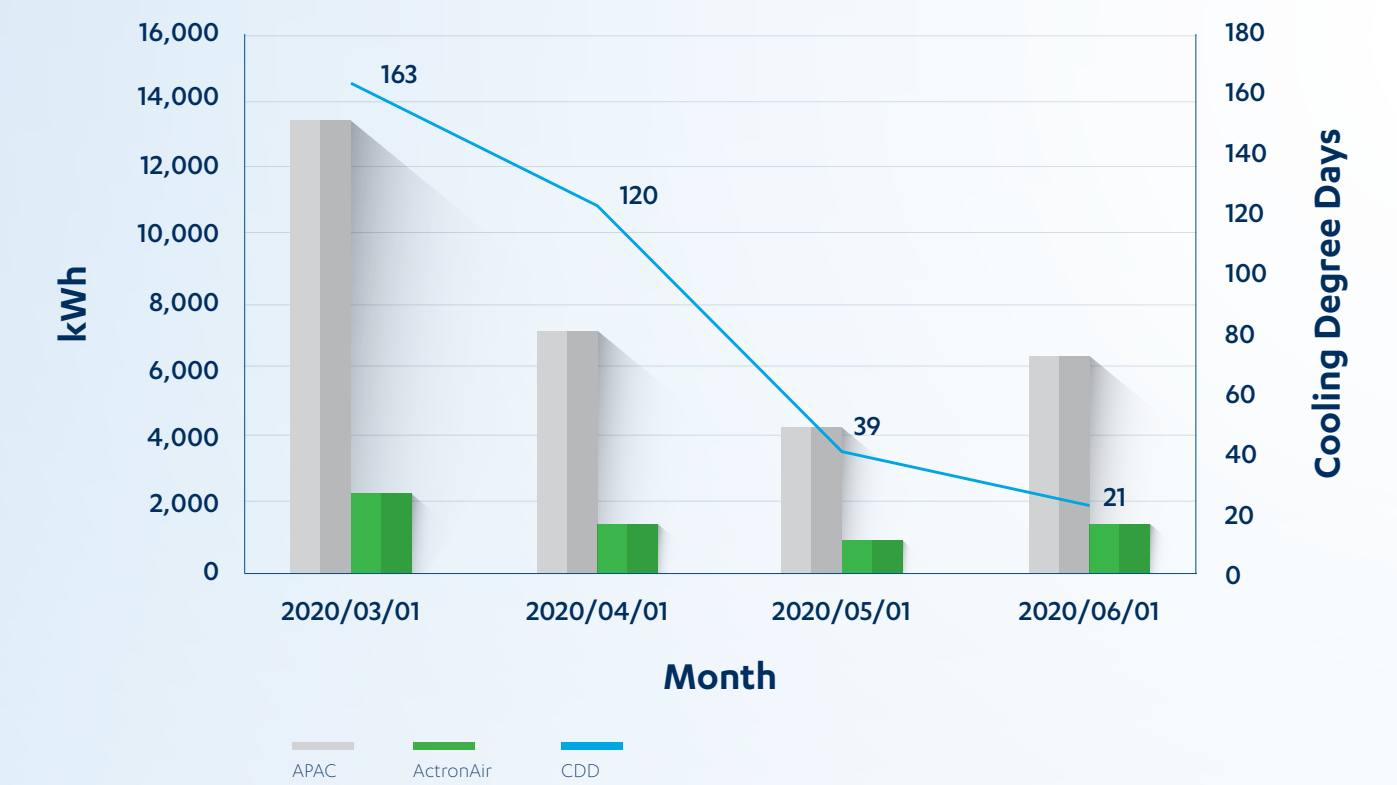
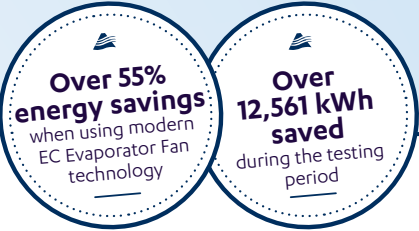


Figure 3: APAC and ActronAir Monthly Consumption with CDD

Benefits of upgrading to new technology

Energy Savings

Data loggers (Onset EG4115) were installed on each AC unit for measuring in detail of the mains, compressors, evaporator fans, and condenser fans electricity consumption separately. Detailed breakdown measurement result is shown below



Compressor Energy Savings

APAC Compressor Measurement Result

Month	Compressor 1 (kWh)	Compressor 2 (kWh)
Mar-20	1,624.08	4,520.52
Apr-20	793.82	2,309.17
May-20	246.19	1,716.36
Jun-20	514.75	2,056.02
Total	3,178.83	10,602.07

ActronAir Compressor Measurement Result

Month	Compressor 1 (kWh)	Compressor 2 (kWh)
Mar-20	737.32	61.42
Apr-20	258.90	4.51
May-20	101.28	0.91
Jun-20	52.49	2.79
Total	1,149.99	69.63

Evaporator Fan Energy Savings

APAC Evaporator Fan Measurement Result

Month	Evaporator Fan (kWh)
Mar-20	2,625.68
Apr-20	1,739.74
May-20	1,161.07
Jun-20	1,878.98
Total	7,405.47

ActronAir Evaporator Fan Measurement Result

Month	Evaporator Fan x 2 (kWh)
Mar-20	1,130.83
Apr-20	771.11
May-20	519.50
Jun-20	867.62
Total	3,289.06

Total System Energy Savings

During the compared period from 1st March 2020 to 30th June 2020 the

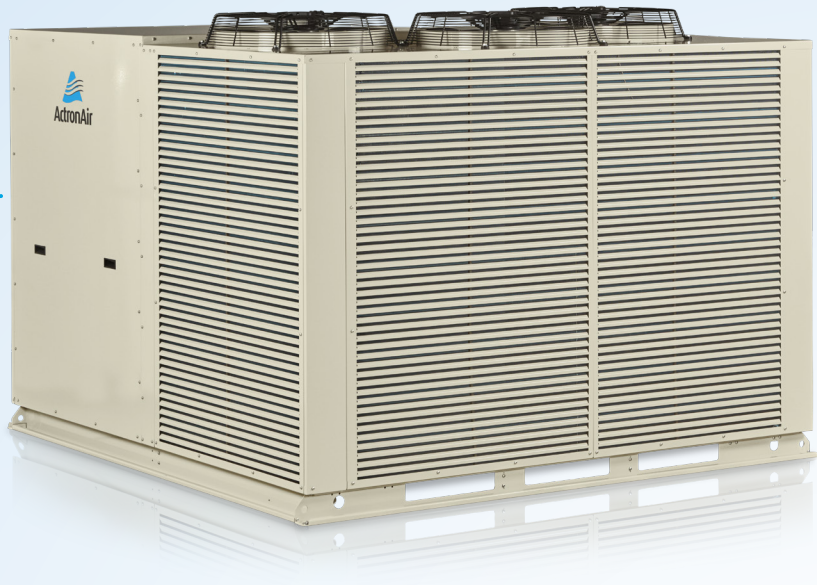
- **APAC unit consumed 31,389 kWh electricity**
- **ActronAir unit consumed 5,634 kWh electricity**
- **This equates to over 82% savings for ActronAir during this period**



Work smarter not harder

Apples for apples test

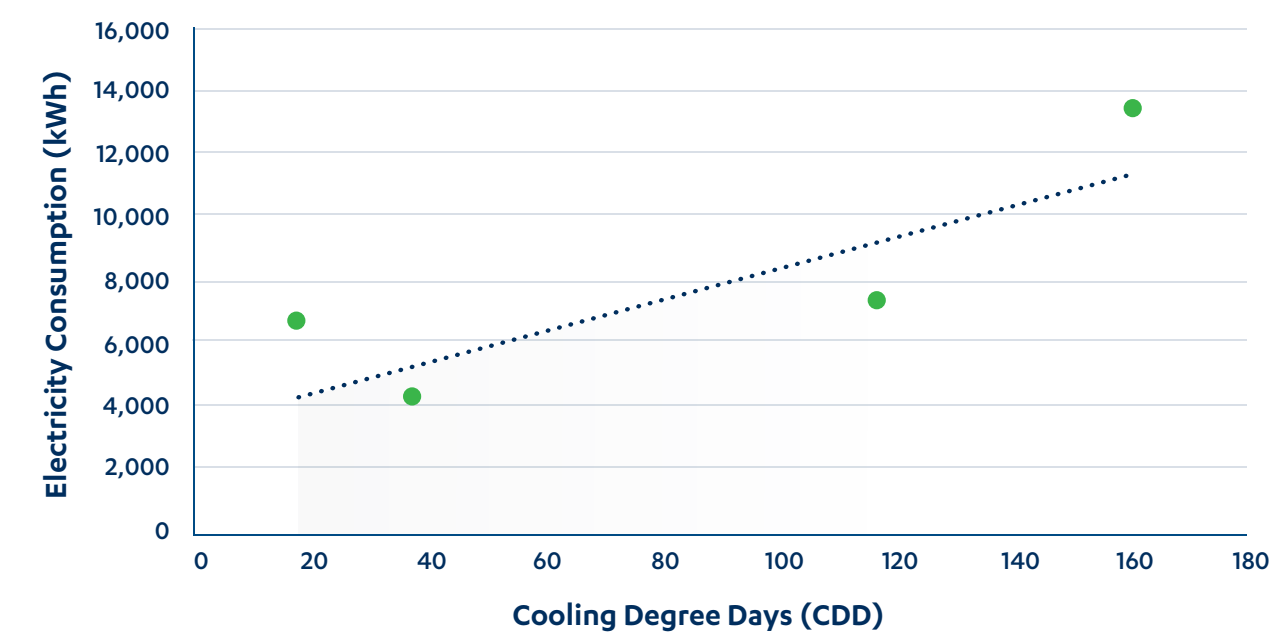
New air conditioners apply smarter, newer modern technology which perform beter and cost you less. The temperature loggers were installed on return air duct of both AC units. Recorded average temperatures are shown in below table.



Period	ActronAir Return Air Temperature Average (°C)	APAC Return Air Temperature Average (°C)
14/02/2020 - 22/04/2020	23.31	24.24

Energy Analysis

APAC Linear Analysis of Electricity Consumption & CDD



Testimonials

“We’ve recently installed a total of 5x ActronAir 96kW Tri Capacity Package air conditioning units across our factory, with 4 more remaining to be replaced.

Across two months 2020 comparison (Oct/Nov) to the same two months in 2019, we have found the following:

Consumption was reduced by an average of 14.76%. This equated to a savings in power costs of an average of 13.1%. These savings, again only based on two months comparisons, equate in real cash terms to the approximate amount of \$53,000 per annum.

Taking into account the initial purchase price of each unit, this annual savings makes the purchase price more than palatable, and given the expected life span of the units we see our company as being well positioned to have the units pay for themselves easily within 5 years, with cash positive benefits extending well beyond this time.”

Matt Naughton
General Manager - Printcraft

“C and S Airconditioning have managed Printcraft printing site in Brisbane for approximately 10 years. Printcraft purchased a new site in 2018 with 9 APAC units feeding the building and had been in poor maintenance for many years. Over a 14 month period \$64,000 was spent on breakdowns and repairs alone, not including regular maintenance. As the APAC units were 17 plus years old and at the end of their lifespan we put forward a plan to upgrade units to more efficient and updated Actron units to save Printcraft on their annual spend. This was evaluated and decision made to replace the first PKY96OT package unit September 2019.

We recommended Actron as an Australian made package units to the client and worked with Actron. We found the unit replacement process went well. The Client planned to replace 7 units over the next 4 years although due to the continued cost saving this has been accelerated to 4 units in 1year. Breakdowns and repairs on the 4 new unit is currently at \$0 and only regular maintenance is performed.”

Brad Berry
Director - C & S Air Conditioning Pty Ltd

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