

PANASONIC 5HP – NON-INVERTER vs INVERTER

FINAL COMPARISON FOR COMMITTEE CONSIDERATION

Dear Church Committee Members,

Following our previous discussion, I have further compared the **Panasonic 5HP Non-Inverter** and **Panasonic 5HP Inverter** options based on the actual usage of our First Floor Hall, cooling performance, purchase cost, electricity consumption, maintenance, PCB replacement cost, noise level and long-term practicality.

1. DIRECT COMPARISON

● Red mark = advantage of that particular option

Item	Panasonic 5HP Non-Inverter	Panasonic 5HP Inverter
Quotation	● RM6,300	RM7,600
Price Difference	● Save RM1,300	+RM1,300
Cooling Capacity	● 48,500 BTU/h	47,800 BTU/h
Air Volume	1,285 CFM	1,285 CFM
Rated Power Input	● 4.14 kW	4.63 kW
Inverter Power Range	—	● 0.63–5.10 kW
Indoor Noise	47 / 41 dB(A)	47 / 41 dB(A)
Outdoor Noise	58 dB(A)	58 dB(A)
Chemical Service	● RM500	RM550
Indoor PCB	● RM680	RM980
Outdoor PCB	● RM680	RM1,730 (2 pcs)
Potential PCB Replacement Cost	● RM1,360	RM2,710
System Complexity	● Simpler	More electronic components
Temperature Control	Good	● More stable
Partial-Load Efficiency	Lower	● Higher
Compressor Operation	Fixed speed	● Variable speed

2. ACTUAL USAGE OF THE FIRST FLOOR HALL

The normal air-conditioner usage is approximately:

Saturday

2:00pm – 5:00pm → 3 hours

7:00pm – 10:30pm → 3.5 hours

Sunday

8:30am – 11:30am → 3 hours

Total: approximately 9.5 hours per week

Based on the estimated operating cost of approximately **RM2/hour**:

- 3-hour session → approximately **RM6**
- 3.5-hour session → approximately **RM7**
- 9.5 hours/week → approximately **RM19**
- Approximately **RM82/month**
- Approximately **RM988/year**

These are estimated figures only. Actual electricity consumption will depend on cooling load, operating conditions and the actual electricity tariff.

Because our actual usage is only approximately **9.5 hours per week**, the electricity-saving advantage of the Inverter may take a longer period to recover the additional **RM1,300 purchase cost**.

3. COOLING CAPACITY & AIRFLOW

Panasonic 5HP Non-Inverter

● **48,500 BTU/h**
1,285 CFM

Panasonic 5HP Inverter

47,800 BTU/h
1,285 CFM

The two models have almost the same cooling capacity and **exactly the same quoted airflow of 1,285 CFM**.

Therefore, the Inverter's additional RM1,300 is **not mainly paying for higher cooling capacity**.

The main advantage of the Inverter is its ability to vary compressor speed according to the cooling demand.

4. ENERGY EFFICIENCY

Non-Inverter

The compressor operates at a fixed speed and controls temperature mainly through compressor ON/OFF cycling.

- **Advantage: simpler operation and lower initial cost**

However:

- Lower efficiency during partial-load operation
- More ON/OFF compressor cycling
- Less precise temperature control

Inverter

The compressor can vary its speed according to the cooling demand.

- **Advantages:**

- Better partial-load efficiency
- More stable temperature
- Can reduce compressor speed after the hall reaches the desired temperature
- Better adjustment to changing cooling demand

However, the Inverter has a **higher initial purchase cost of RM1,300**.

5. NOISE LEVEL

Because this is a **worship hall**, noise level is also an important consideration.

According to the Panasonic specifications:

Non-Inverter

Indoor: **47 / 41 dB(A)**

Outdoor: **58 dB(A)**

Inverter

Indoor: **47 / 41 dB(A)**

Outdoor: **58 dB(A)**

Therefore:

There is no significant noise-level difference between the two models based on the quoted specifications.

6. MAINTENANCE & PCB COST

This is an important consideration for long-term maintenance.

Panasonic 5HP Non-Inverter

Indoor PCB: **RM680**

Outdoor PCB: **RM680**

Potential total PCB replacement:

 **RM1,360**

Panasonic 5HP Inverter

Indoor PCB: **RM980**

Outdoor PCB: **RM1,730 (2 pcs)**

Potential total PCB replacement:

RM2,710

Difference:

RM2,710 – RM1,360 = RM1,350

Therefore, the potential PCB replacement cost is approximately **RM1,350 higher for the Inverter.**

This does **not** mean that the PCB will definitely fail. It is only a consideration of the potential future repair cost.

Considering our previous experience with PCB problems, this is an important factor when looking at long-term maintenance.

7. CHEMICAL SERVICE COST

Contractor's quoted chemical service cost:

5HP Non-Inverter

● RM500

5HP Inverter

RM550

Difference:

RM50 per service

Therefore, the maintenance chemical-service difference is relatively small.

8. EXISTING COPPER PIPE & ELECTRICAL WIRING

The contractor has confirmed that the **existing copper piping and electrical wiring can be reused** for the new 5HP unit.

Therefore:

● **No additional copper-pipe replacement cost**

● **No additional wiring cost**

● **No additional RM2,590 piping cost**

This will also help reduce installation time and allow the contractor to proceed faster.

9. FUTURE SPARE PARTS / CASSETTE-TYPE NON-INVERTER

According to the information provided by the contractor, the government restriction expected next year applies to **wall-mounted non-inverter air-conditioners**, while **cassette-type non-inverter units are not affected in the same way**.

Therefore, according to the contractor, cassette-type non-inverter air-conditioners should continue to have spare-parts and service support.

This is an important point to consider because our proposed unit is a **cassette-type 5HP Non-Inverter**.

10. MAIN ADVANTAGES OF EACH OPTION

● PANASONIC 5HP NON-INVERTER – RM6,300

- Lower purchase price – save RM1,300**
- Higher cooling capacity – 48,500 BTU/h**
- Same airflow – 1,285 CFM**
- Lower potential PCB replacement cost – RM1,360**
- Lower chemical service cost – RM500**
- Simpler system**
- Potentially easier and less costly future troubleshooting**
- Suitable for our relatively limited usage of approximately 9.5 hours/week**
- Same quoted noise level as Inverter**
- Existing copper pipe and wiring can be reused**

Main disadvantage:

- ✗ Lower energy efficiency compared with Inverter**
 - ✗ Less precise temperature control**
 - ✗ Fixed-speed compressor**
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● PANASONIC 5HP INVERTER – RM7,600

- Variable-speed compressor**

- **Better temperature stability**
- **Better partial-load energy efficiency**
- **Can adjust cooling according to actual cooling demand**
- **Same 1,285 CFM airflow**
- **Same quoted noise level as Non-Inverter**

Main disadvantages:

- ✗ **RM1,300 higher purchase price**
- ✗ **Higher potential PCB replacement cost**
- ✗ **Indoor PCB: RM980**
- ✗ **Outdoor PCB: RM1,730 for 2 pcs**
- ✗ **Potential total PCB replacement: RM2,710**
- ✗ **More electronic components and greater system complexity**
- ✗ **Our actual usage is only approximately 9.5 hours/week**

11. MY PERSONAL RECOMMENDATION

After comparing the two options based on:

- Purchase cost
- Cooling capacity
- Airflow
- Actual usage hours
- Estimated electricity cost
- Noise level
- Chemical service cost
- PCB replacement cost
- System complexity
- Future maintenance
- Existing piping and wiring

My suggestion this time is:

PANASONIC 5HP NON-INVERTER

 **RM6,300**

My recommendation is not simply because it is cheaper.

I feel the **5HP Non-Inverter** gives our church a practical balance between cooling performance, reliability, maintenance and cost.

It provides:

48,500 BTU/h + 1,285 CFM

while the Inverter provides:

47,800 BTU/h + 1,285 CFM

Our hall is also only normally using the air-conditioner for approximately **9.5 hours per week**.

Therefore, I feel that the additional **RM1,300** for the Inverter may take a relatively long time to recover through electricity savings.

At the same time, the Non-Inverter has:

- Lower purchase cost
- Lower chemical service cost
- Lower potential PCB replacement cost
- Simpler system
- Slightly higher cooling capacity
- Same airflow
- Same quoted noise level

The **Panasonic 5HP Inverter at RM7,600** remains a good option if the Committee considers energy efficiency and temperature stability to be the higher priority.

However, based on the overall balance, **my personal recommendation is the Panasonic 5HP Non-Inverter at RM6,300.**

12. FINAL DECISION

I would like to hear everyone's opinions before we make the final decision.

Once the Committee agrees on the selected model, we should:

1. **Confirm the model immediately**
2. **Place the order immediately**
3. Confirm stock availability
4. Arrange installation urgently
5. Reuse the existing copper piping and electrical wiring
6. Push the contractor to complete the installation **before this Sunday**

The objective is to select the **most suitable and practical solution for our First Floor Hall**, while ensuring that our Sunday School and worshippers can have a comfortable worship environment.

Thank you everyone for your consideration and valuable input. 🙏