

- How to operate the system most effectively.
- How to save on energy costs.
- How to maintain your system.

Please read this booklet carefully.

ACTRON ENGINEERING PTY LTD

## **GENERAL INFORMATION**

**YOUR ACTRON AIR SYSTEM IS A STATE OF THE ART PRODUCT** with its Microprocessor Control it automatically filters, circulates and conditions by cooling or heating the indoor air to give you complete year-round climate control.

**INSIDE THIS MANUAL** You will find instructions for two types of wall controllers, the standard model (AM24) and the 7-Day Programmable model (AM7). The AM7 control has all the features the AM24 has but with the addition of a fully programmable 7-Day timeclock.

NOTE: Most of the basic functions are shown using the AM24 control, the AM7 buttons are the same for basic functions.

**SUMMER OPERATION** is when your system is operating on COOLING CYCLE, the room air is circulated through the filter and indoor unit where heat, excess moisture and dust are removed. The clean, cool air is then returned to your room. Dust and other air borned particles are trapped in the filter, and condensed moisture is drained away. The indoor heat is transferred by interconnecting refrigeration pipes to the outdoor unit, which then exhaust this heat to the outdoor atmosphere.

**WINTER OPERATION** is just the reverse use of the system to obtain heat into our rooms. During the HEATING CYCLE, the outdoor unit extracts heat from the outside air and then transferred by the same interconnecting pipes to the indoor unit where the circulated air is heated and returned to your rooms. Again, the room air is filtered reducing dust and other particles.

## SAFETY AND OPERATION PRECAUTIONS

**ACCESS PANELS AND GUARDS:** NEVER remove any access panels or guards as this could cause injury from electric shock and burns from extremely hot components. Never allow any bodily parts such as fingers or objects to protrude through the fan guards or any other opening as they could cause personal injury and damage the air conditioner.

**RETURN AIR FILTER:** The air conditioner must never be operated without a Return air Filter as this will allow a build up of dust etc on the Indoor Coil. This is very difficult to clean and causes the system to operate inefficiently or even fail.

**CRANKCASE HEATER PRECAUTION:** The main power (Outside switch board) to the system must be kept ON at all times to prevent damage to the outdoor compressor unit. Should the main power be disconnected or interrupted for 6 hours or longer, then no attempt should be made to start the system for 2 hours after the power has been restored to outdoor unit. This allows the compressor to warm up, and remove any liquid refrigerant that may cause damage.

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## **System Information**

Air Conditioner	
Model No.	
Serial No.	
The air conditioner m	nodel and serial number is situated on the access panel of the efficiency of the

	Wall Controller	
Model No.		

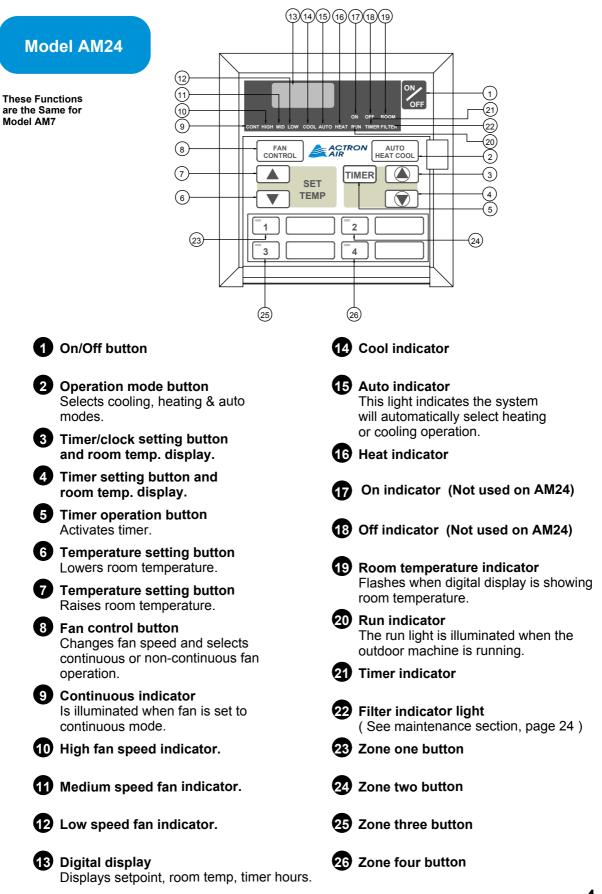
The wall controller model number is situated inside the wall controller flip lid.

	Installer
Company Name	
Phone No.	
Technicians Name	

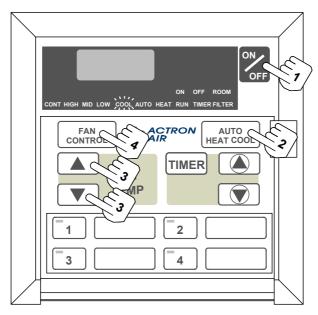
# **Advanced Features**

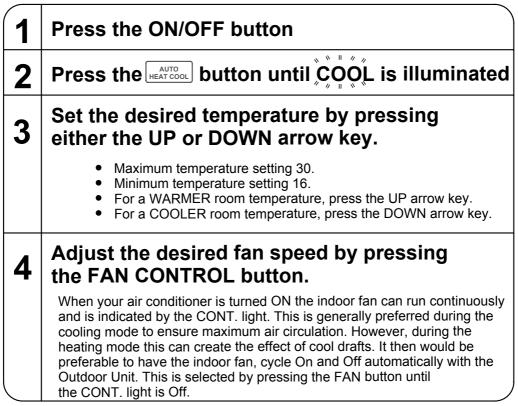
(1)	Auto-Restart After Power Failure
	Should a power failure occur whilst the air conditioner is running, the wall controller will restart the air conditioner in the same mode when the power is restored.
2	Dual Wall Control Operation ( Optional )
	Two wall controls can be installed on one system. This is particularly useful on two storey houses, where you can have one control upstairs and one control downstairs or having the second wall controller in the master bedroom, giving you total climate control. (See Dual Wall Control Operation for more info, Page 19)
3	Room Temp Display with One Touch
	Simply press the up arrow button in the timer section and the set temp display will change to show the room temperature for 3 seconds.
	Note: When zones are fitted, the temperature displayed will depend on which sensor has been selected by the wall controller ( See Zone Controller Functions, Page 18 )
4	Integrated Zoning ( Optional )
-	The integrated zoning system has a unique feature where it can select which
	remote temperature sensor to use depending on which zones are selected. One example is on a two-storey house and you only have the downstairs zone on,
	the zone control will select the downstairs sensor to control the temperature, thus ensuring perfect comfort in the area occupied.
5	Auto Defrost Function (Heating Mode)
	At certain outdoor conditions (low temperature) there may be a build up frost on the outdoor heat exchanger. This gradual build up frost reduces the performance of the air conditioner. the microprocessor detects this frost build up and will automatically activate the defrost mode.
	The defrost mode is displayed on the wall controller by flashing the heat light every 10 seconds.
6	Hot Start Function ( Heating Mode )
	When the air conditioner starts in heating mode, the indoor fan is delayed for a short period of time, this allows the heat exchanger to warm up before the air flow starts, thus preventing cold drafts. The hot start feature also activates itself when the system finishes defrosting.
7	Filter Clean Light
	The microprocessor monitors the accumulated run time of the air conditioner and after a preset number of hours has passed, the "Filter" light will flash, indicating it's time to check if filter needs cleaning. (See Maintenance section, page 24)
8	Self Diagnosis
	In the unlikely event that a fault develops with the air conditioner the microprocessor will diagnose the fault (where possible) and display a fault code on the wall controller. (See Trouble shooting, page 25)

# WALL CONTROLLER FUNCTIONS



# **Cooling Operation**



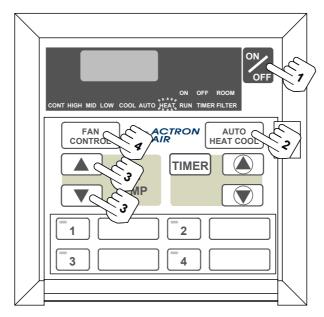


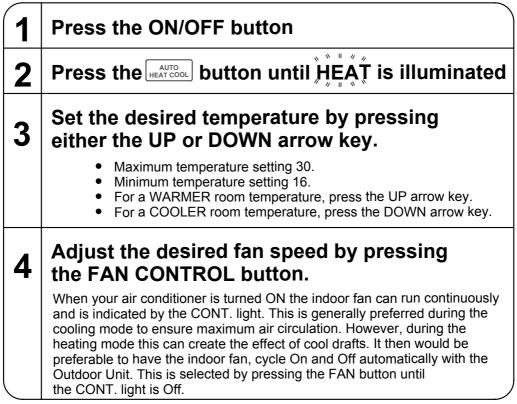
## OFF

3

Press the ON/OFF button again.

# **Heating Operation**





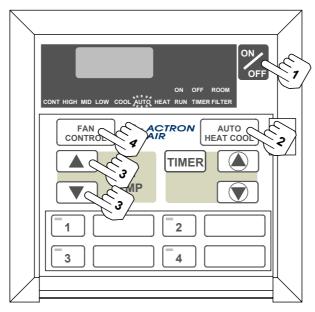
## OFF

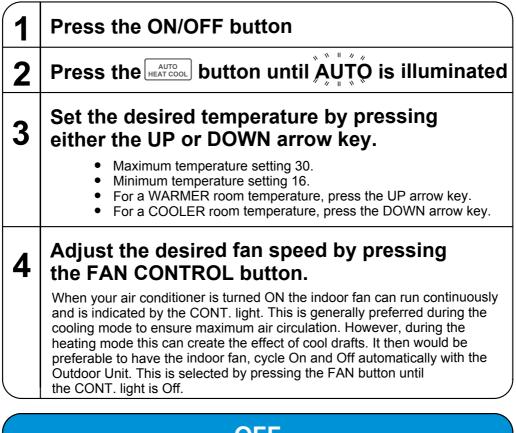
3

#### Press the ON/OFF button again.

# **Auto Operation**

Automatically Changes between Heating to Cooling



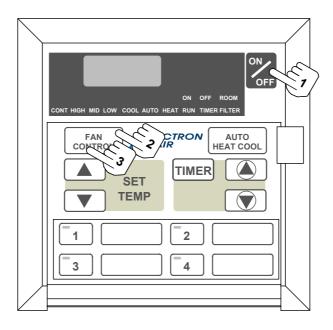


## OFF

3

#### Press the ON/OFF button again.

# **Circulation Operation**



1	Make sure the system is off.
2	Press the FAN CONTROL button
3	Adjust the FAN SPEED by pressing the FAN CONTROL button.

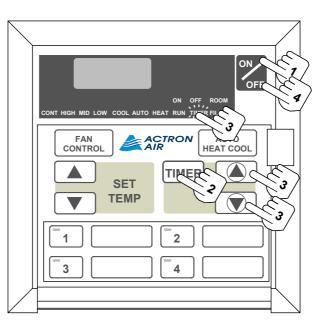
## OFF

4

#### Press the ON/OFF button.

# **Timer Operation**

OFF Timer Function



# Press the ON/OFF button Make sure the system is running and the operating conditions are those desired. Press the TIMER button Set the desired hours for the system to turn OFF by pressing either the UP or DOWN arrow keys. The up/down arrow keys must be pressed whilst Timer is flashing. The timer can be set from 0.5 hours to 24 hours.

**Timer Cancellation** 

4

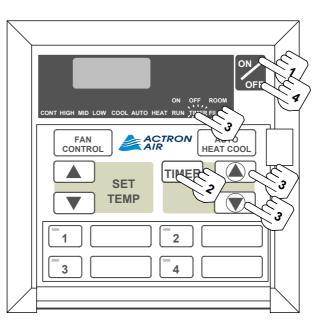
Press the ON/OFF button again

## **Changing the Hours Set**

**5** Follow the steps 2 and 3

# **Timer Operation**

ON Timer Function



1	Make sure the system is OFF
2	Press the TIMER button
3	Set the desired hours for the system to turn ON by pressing either the UP or DOWN arrow keys.
	The up/down arrow keys must be pressed whilst Timer is flashing. The timer can be set from 0.5 hours to 24 hours.

## **Timer Cancellation**

**4** Press the ON/OFF button again

## Changing the Hours Set

**5** Follow the steps 2 and 3

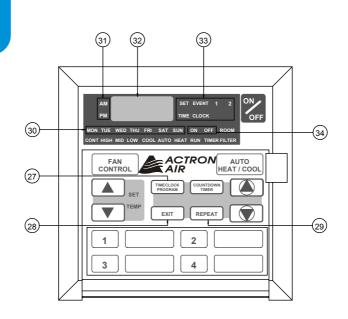
#### 

- When the air conditioner is started by the timer function, it will only start in Auto mode.
- Circulation mode can not be turned on by the Timer.

# 7-Day Programmable Model

#### Wall Controller **Functions for** Model AM7

See model AM24 for other button fuctions on page 4





#### **27** Time clock Program button

For setting the clock For entering the 7-day time clock menu.

#### **23** Exit button

For quick exit from any program menu.

#### **29** Repeat button

For repeating the previous day settings to the current day.

**30** Day indicator

Display the day of the week when the time is shown and which day is selected for programming.



**31** AM / PM indicators

#### **32** Digital display

Displays the set temp, room temp, current time, count down timer times and event times.

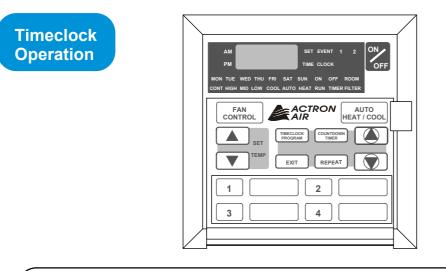


#### 33 Program and event menu

#### **34** On / Off indicators

Indicates whether you are setting the "ON" time or "OFF" time in the 7-day time clock.

## 7-Day Programmable Model (cont....)



- The 7 Day timeclock feature on the AM7 controller allows you to set the air conditioner to turn ON and OFF at different times for each day of the week.
- Each day can have two programmed events.
- Each event has an ON and OFF time.

#### Example of a typical timeclock set-up

		MON	TUE	WED	THU	FRI	SAT	SUN
EVENT	ON TIME	6:00am	6:00am	6:00am	6:00am	6:00am	7:00am	8:00am
1	OFF TIME	10:00am	10:00am	10:00am	10:00am	10:00am	9:00am	12:00am
EVENT	ON TIME	4:00pm	4:00pm	4:00pm	4:00pm	1:00pm		
2	OFF TIME	10:00pm	10:00pm	10:00pm	10:00pm	11:00pm		)

#### Cancelling an individual event

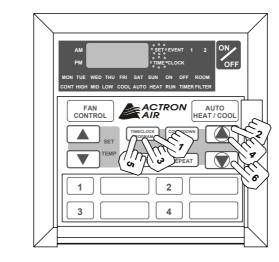
Go to the ON time for the event you wish to cancel and press the ON/OFF button.

----- will be displayed indicating the event is cancelled.

## 7-Day Programmable Model (cont....)

**Setting the Time** 

and Day



1	Press the TIMECLOCK PROGRAM button 3 times and "SET" will be illuminated with "TIME" flashing.	
2	Adjust the "hours" by using the 🔵 buttons.	
3	Press the "TIMECLOCK PROGRAM" button.	
4	Adjust the "minute" by using the 🔵 buttons.	
5	Press the "TIMECLOCK PROGRAM" button.	
6	Set the "Day" by using the 🔵 buttons.	

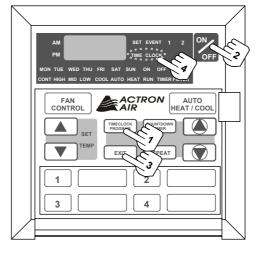
#### **Battery Backup**

**1** During a power failure, the clock retains the time and day via the backup battery inside the wall control.

## 7-Day Programmable Model

(cont....)

Activating and De-activating the 7-Day Timeclock

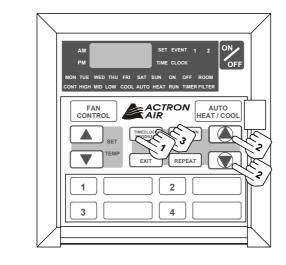


	Activating
1	Press the TIMECLOCK PROGRAM button twice
2	Press the ON/OFF until "ON" is flashing
3	Press the EXIT button
4	TIMECLOCK should now be illuminated

	De-Activating		
1	Press the TIMECLOCK PROGRAM button twice		
2	Press the ON/OFF until "OFF" is flashing		
3	Press the EXIT button		
4	TIMECLOCK should not be illuminated		

## 7-Day Programmable Model (cont...)

Programming the Events



1	Press the TIMECLOCK PROGRAM button repeatedly until event "1" and "MON" is illuminated. You are now setting MONDAY, event 1, ON time.	
2	Use the	
3	Press the TIMECLOCK PROGRAM button to move to event 1 off time and follow step 2.	
4	Press the TIMECLOCK PROGRAM button to move to the next event.	
	The event time is entered once you press the TIMECLOCK PROGRAM button. If you press the EXIT button before moving to the next event, the time you have programmed will not be entered.	
5	Repeat the above steps until you have programmed all the events you require.	

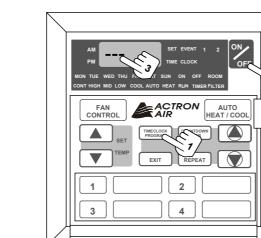
	Programming Past Midnight				
1	Event On times can be set to 11:45 PM of the current day.				
2	Event Off times can be set to 9:00 AM the following mornings.				

Notice

• If you program event 1 past midnight, event 2 will be automatically cancelled.

## 7-Day Programmable Model (cont....)

2

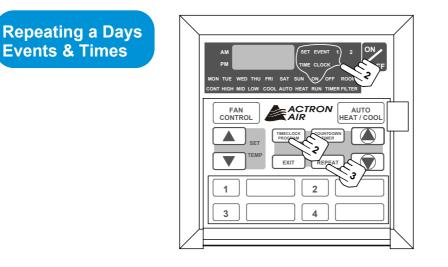


Cancelling an Individual Event

1	Press the TIMECLOCK PROGRAM button repeatedly until the "ON" time for the event you wish to cancel is displayed.
2	Press the ON/OFF button
3	will be displayed indicating the event is cancelled.
4	Repeat the above steps until you have cancelled all the desired events.
5	See 7-Day timeclock operation for programming sequence. Page 12

	Re-Activate an Event		
1	Repeat steps 1 & 2 as above		
2	Press the ON/OFF button until the time re-appears.		

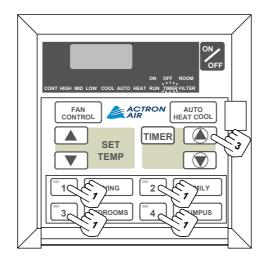
## 7-Day Programmable Model (cont....)



This feature allows you to automatically repeat the previous days events and times, thus eliminating the need to re-enter the events and times.

1	Go to the day you wish to copy and program your events and times. See "Programming the Events" page 15.
2	Press the TIMECLOCK PROGRAM button until the following days, event 1, ON time is displayed. Display shows "SET", "EVENT", "1", "TIMECLOCK" and "ON"
3	<b>Press the REPEAT button</b> You have now copied the previous days events into the current day displayed.
4	Repeat steps 2 and 3 for the remaining days.

# ZONE CONTROLLER FUNCTIONS



## **Turning Zones ON & OFF**

- **1** Press the zone button to turn zones on & off.
- **2** | Lights are illuminated when zone is turned on.

#### Notice

• The minimum of one zone is to be left on, this is controlled automatically by the wall control and will not allow you to turn off the last zone operating.

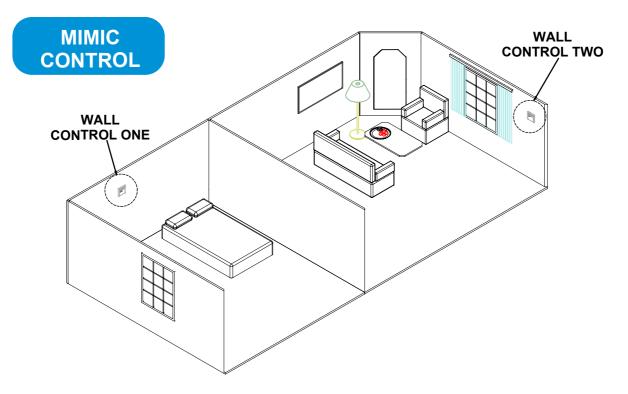
## **Room Temperature Display**

**3** Press the "Up Arrow" button in the timer section and the room temperature will be displayed for 3 seconds

#### Notice

• The room temperature displayed can be the temperature at the wall controls or remote wall sensors or a combination of both.

# **Dual Wall Control Operation**



- The air conditioner can be operated from either wall control.
- Information displayed on the two wall controls is identical.
- Last wall control used has priority.

## Eg. 1

Using wall control one, the cooling operation is started, both wall controls will now show the system is in cooling mode. If another person uses wall control two to select heating operation, the system will now change to the heating operation and both wall controls will display the system is in heating operation.

## Eg. 2

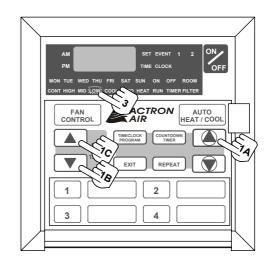
Using wall control two, the circulation operation is selected, both wall controls will now show the system in circulation mode. If another person uses wall control two to select cooling operation, the system will now change to the cooling operation and both wall controls will display the system is in cooling operation.

## **Setting the Upper and Lower Temperature Limits**

This feature allows you to set the upper and lower temperature limits on your wall control.

This can be used in a variety of ways.

- 1. You may want the maximum set-temp limited to 25C and the minimum settemp to 20C, thus stopping anyone from setting the temperature to high or low.
- 2. You may want to lock the set-temp to 22C to stop anyone else adjusting the set-temp up and down. To do this, simply adjust the upper and lower limit until they are the same.



Default Upper and Lower Limits = Upper (30C) Lower (16C) It is recommended not to adjust the upper and lower limits outside the defaults above, before talking with your installer. Doing so, may cause damage to your system and void warranty

Adjustable limits Upper = 10C to 32C Lower = 10C to 32C

#### SETTING THE LOWER LIMIT

1	Press the timer (1A) button, followed by the set-temp (1B) button. You must press the two buttons in quick succession.		
2	The display will now show the "Lower" limit for 3 seconds and this is indicated by "LOW" also being illuminated.		
3	Whilst the "Lower limit" is displayed, use the set-temp arrow buttons to adjust up or down.		
4	After 5 seconds the Lower limit will be automatically excepted.		

# SETTING THE UPPER LIMIT1Press the timer (1A) button, followed by the set-temp (1C) button.<br/>You must press the two buttons in quick succession.2The display will now show the "Upper" limit for 3 seconds and<br/>this is indicated by "HIGH" also being illuminated.3Whilst the "Upper limit" is displayed, use the set-temp arrow<br/>buttons to adjust up or down.4After 5 seconds the Upper limit will be automatically excepted.

#### (Notice)

You cannot adjust the upper limit below your current set-temp. You cannot adjust the lower limit above your current set-temp.

## **Operating Tips for Extreme Weather**

# Summer

#### Always test run your air conditioner a few weeks before the start of summer and make sure it's cooling sufficiently.

If the air conditioner needs servicing, it's advised you have this done before the summer season arrives.

## 2

#### A HOT day is forecast for tomorrow, what should you do?

Always start the air conditioner early in the morning and keep the house/office cool. If you try and start the air conditioner in the afternoon when the house/office is already very hot, if may take a while to cool down.

Keep all curtains and windows closed. Also stop drafts coming in from your front & back doors.

If you have zones, turn off any you are not using and close doors to these areas, this will give you more cooling capacity in the areas you need.

Ask your installer on the minimum zones you should use on your system.

Notice

Always allow the necessary amount of fresh air into rooms.

## **Operating Tips for Extreme Weather**

## Winter

2

1	Always test run your air conditioner a few weeks before the start of winter and make sure it's heating sufficiently.
	If the air conditioner needs servicing, it's advised you have this done before the winter season arrives.

## A COLD day is forecast for tomorrow, what should you do?

You can leave air conditioner running overnight, but lower the set point 2-4 degrees from your normal setting to help save electricity. This will prevent the house/office from becoming to cold overnight and thus enabling the air conditioner to warm the house/office quicker when you raise the temperature set point back to your usual setting. OR

Start the air conditioner a couple of hours earlier than you normally would in the morning.

If outside conditions are very cold (approx. 7°C or lower) supplementary heating may be used such as electric or gas heaters to complement & speed the heating up.

Keep all curtains and windows closed. Also stop drafts coming in from your front & back doors.

If you have zones, turn off any you are not using and close doors to these areas, as this will give you more heating capacity in the areas you need.

Ask your installer on the minimum zones you should use on your system.

(Notice

• Always allow the necessary amount of fresh air into rooms.

## **Energy Conservation Tips**

For the most efficient operation, keep the windows and doors closed including unused areas where possible. They not only help to insulate against heat and cold, they also reduce dust, pollen and noise.

Occasionally allow fresh air into rooms and offices that are closed off.

Should you wish to leave your air conditioner on over night during the winter. Set your thermostat down by 2 to 4 degrees Celsius when going to bed and reset to your normal setting upon arising, as there is no reason to pay for extra electricity when you are under the blankets. This can also apply during the summer nights and therefore raise the temperature by 2 to 4 degrees Celsius.

On days when extreme conditions of High or Low temperatures prevail and the home is unoccupied, it can be practical to leave the air conditioner ON. However to reduce energy costs, set the temperature up 2 to 4 degrees Celsius (Cool Mode) for summer and down 2 to 4 degrees Celsius (Heat Mode) for winter and reset to your normal setting upon returning. This will provide a more comfortable situation and reduce the high heat load as the Air Conditioner not only has to cool or heat the air, it also has to cool and heat the furniture, walls, floors and ceilings.

The normal setting recommended is 22 degrees Celsius for both summer and winter.

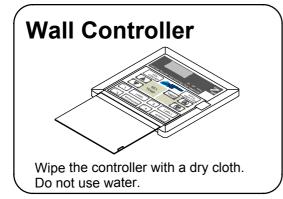
By raising the set point by  $1^{\circ}$ C in summer or lowering the set point by  $1^{\circ}$ C in winter can save approx. 10% on electricity costs.

## ZONING

If your air conditioner has zones fitted, always turn off the zones you aren't using as this will save energy by the air conditioner not having to operate as long.

2

# Maintenance



Outlets and Return air

Dust off the outlets and return air, use a household duster. Do this regularly to prevent any build up of dust or dirt.

## Air Filter Cleaning

Clean every 4 weeks or when the filter light is displayed on wall control.

#### **1** Open the inlet grille.

Caution, dust may fall from return air grille.

#### **2** Remove the filter by sliding it out from the grille.

#### **3** Clean the filter

Using a vacuum cleaner to remove the dust or wash the filter with water. Be gentle when cleaning the filter to avoid tearing the filter material.

#### 4 Replace filter.

## Notice

- When the filter light is illuminated, check the air filter and clean if necessary and press the ON/OFF button to extinguish filter light.
- Always check with your installer for the proper care and maintenance of the filter system.

Outdoor Unit
1 Do not obstruct airflow.
2 Keep grass or plants away from the unit. This will ensure your air conditioner operates efficiently.

# **Trouble Shooting**

CONDITION	CAUSES OR CHECK POINTS	
The system does not start.	<ul> <li>Check that 5 minutes has passed from turn on time, as the system has inbuilt safety timers.</li> <li>Check thermostat settings are correct.</li> <li>Check the thermostat "set-point" is set low enough for cooling or high enough for heating.</li> </ul>	
Air does not flow. (Indoor Unit)	<ul> <li>Check Zones are switched on (Where fitted)</li> <li>During heating operation, air does not flow out for approx. 15 seconds after start up, this prevents cold drafts.</li> <li>During the defrost of the outdoor unit in heating operation, the indoor fan will not operate for several minutes, this is to prevent cold air being blown into rooms.</li> </ul>	
Cooling/Heating is not sufficient.	<ul> <li>The cooling/heating function may not work effectively when the "return air filter" is clogged with dust and dirt.</li> <li>Make sure the air inlet and air outlet on the outdoor unit are not blocked.</li> <li>The outside temperature is above or below the design conditions.</li> </ul>	
Steam from outdoor unit.	<ul> <li>It is caused by the defrosting of the outdoor unit in heating operation in cold conditions.</li> </ul>	
Water from outdoor unit.	<ul> <li>This is normal during heating operation, it is due to water forming on the heat exchanger.</li> </ul>	
Occuring of noises	<ul> <li>When heating or cooling is started or stopped, a swishing or gurgling noise may be heard. This noise is generated by the refrigerant flowing between the outdoor and indoor units.</li> <li>A whooshing noise may be heard from the outdoor unit during operation. This noise is generated when the refrigerant changes direction in the defrost operation.</li> <li>On start up, the outdoor unit may be louder than normal for a few seconds whilst the compressor reaches the designated speed and operating pressure.</li> <li>During defrost operation the compressor may generate more noise than normal.</li> </ul>	
Fault Codes	• When EXX is displayed on the wall controller, take note of the digits after E and contact your installer.	
Before contacting your installer, please have your air conditioners Model No. and Serial No. with you. (See page 2)		

# Trouble Shooting (cont....)

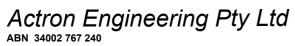
CONDITION	CAUSES OR CHECK POINTS
Set-temp can't be adjusted.	Check your wall control set-temp limits are not being exceeded. Check the upper and lower temperarue are set correctly (see page 20).
7-day timeclock is not turning the air conditioner on and off. (7-day programmable model only)	Check the timeclock is activated (see page 14)
7-day timeclock is not accepting times you enter. (7-day programmable model only)	Check you don't have times overlaping from another day. Make sure your not trying to set the time past the maximum allowable (see programming past midnight page 15)

Before contacting your installer, please have your air conditioners Model No. and Serial No. with you. (See page 2)

## **Re-Setting The Wall Control**

	Re-Setting All Functions For AM24 & AM7	
Note:	Note: This does not reset the 7-day timeclock features on the AM7 wall controller.	
1	Make sure the air conditioner is in the OFF position.	
2	Press and hold down FAN CONTROL + SET-TEMP DOWN ARROW + ON/OFF.	
	All the display indicators will flash, with the ON/OFF indicators flashing for a further 20 seconds. The wall control is now reset to the original factory settings.	

Re-Setting The Timeclock (7-Day programmable model only)	
Note: This will reset all the 7-Day timeclock programs.	
1	Make sure the wall controller is in the OFF position.
2	Press TIMECLOCK PROGRAM button, followed by the ON/OFF button. You must press the two buttons in quick succession.
3	All the display indicators will light up for approximately 1 second and then all timeclock programs have been re-set to the original factory settings.



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