



ADVANCED REFRIGERATION TECHNOLOGY PTY LTD

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ART Case Information

ART Freezer cases are designed to cycle between -22°C and -18°C.

The display will come down to -22°C.

The compressor will cycle off.

The air temperature inside the case will rise until it reaches -18°C then the compressor will cut back in.

Drinks Cases cycle between 0°C and 4°C

Produce Cases cycle between 4°C and 8°C

Meat Cases cycle between -1°C and 3°C

If the ambient temperature in the store is high or there are a lot of door openings (busy day or the case is being restocked) it is normal for the display to go higher than the upper set point e.g. -18°C for the freezer.

When restocking, try to keep the time the doors are left open to a minimum - especially for the Freezer Case.

Try to stock when the store is not so busy.

Because the inside of the case is so cold, the cold surfaces inside will attract any moisture from the surrounding air, this moisture can form icicles on the product and shelving inside the case.

If the restock is particularly long it is a good idea to let the case run for about 15 minutes after restocking, then set a manual defrost to help clear the moisture stuck to the evaporator.

Information on setting a manual defrost is in the **Case Control** section on Page 3.

6 Door freezer cases are fitted with a Variable Speed Drive on the compressor. The drive has inbuilt systems that monitor incoming power and the compressor. If it detects a problem, it will show a fault and the **Blue** button (on the side of the control box) will light up. The compressor will switch to standard 50Hz power and run as normal. When the **Blue** button is pushed the VSD will take control again. Depending on the model the button may need to be pressed once or twice to do the reset. You will hear a click and the light will go out.

We recommend using some type of Temperature Monitoring System to give warning of out-of-range temperatures and potential problems.

Defrost

The Freezer case is set to defrost every 5 hours as the case changes from cooling mode to defrost. It is normal to hear some extra noise from below the case. There can be a clunk and a hissing noise depending on what the refrigeration cycle is up to when it switches to defrost.

During Defrost the fans inside the case stop so the warm air from the defrost does not circulate around the case.

The Drinks and Produce cases are set to defrost every 12 hours, Meat Cases every 8 hours. This is an off-cycle defrost so the compressor will stop but the evaporator fans will keep running.

When the cases go onto Defrost the current display on the controller will lock for one hour. This is because the display reads the air temperature at the evaporator and the defrost is heating the evaporator to above 0°C to melt the ice. If the display is left to read as normal the reading can get very high, and this is not a true reading of the case temperature so to stop customer concern it stays on the temperature it last read at the start of the defrost.



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Product Temperature

The Digital Display is reading the air temperature in the case - not the product temperature.

This reading will change with door openings and as the case cycles, but the product temperature remains stable.

When testing the product temperature, if you are using the infrared style point-and-shoot thermometers you need to be careful - if you have reflective surfaces, they can give an inaccurate reading.

Just because the pinpoint of the laser pointer is on one surface, that does not mean that is the only section you are getting a reading from; the beam spreads out like a cone from the temperature gun so the further away from the point you want to measure you are the bigger the footprint of the reading area of the thermometer.

Store Conditions

Under MEPS guidelines (Minimum Energy Performance Standards), the cases are designed to operate in an ambient 25°C and 60% Relative Humidity.

The doors and inserts have heaters fitted to stop moisture forming on them. The heaters are set to keep the doors and frame above the dew point and clear of moisture at 25°C and 60% Relative Humidity.

There is a margin built in but operating too far outside these conditions for too long can cause dew to form on the doors and frame.

If moisture starts to build it is best to wipe it off with a soft dry cloth because as the moisture starts to evaporate this causes cooling which can attract more moisture.

Each time a door is opened there is an exchange of air from the store to the case so the warmer the ambient temperature and higher the humidity in the store the more heat and moisture enter the case. The cold surfaces inside the case are like magnets to the moisture in the air. High humidity will cause frosting on shelving and product. Good air conditioning not only removes heat but also moisture.

Cases that are near doorways that are open to the outside air are more likely to have moisture problems.

In cool rainy weather the Air Conditioning may cycle off because the ambient temperature is low, but the humidity will still be high so the Air Conditioning may need to be set to Dry or De-Humidify.

We have these cases installed from the Torres Strait Islands down to Tasmania and moisture build up is very rare and only appears in stores with conditions outside design.

Case Control

Check what is being displayed on the controller.

In normal operation the display will look like this:



The Fan symbol is the fan running light.

The circle with 2 lines is the compressor indicator light. When this light is on the compressor should be running. You should be able to hear it and feel air flow at the grill in the kick panel.

When the controller first calls for the compressor to start the compressor running light will flash until the compressor starts.

In Defrost Mode the display will look like this:



Defrost Symbol - when this is showing the case is in defrost mode.

To manually start a defrost, press and hold the defrost button for 3 seconds.



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Loading of Products

- Product loaded in the cabinet should be chilled, not ambient temperature.
- The initial loading should begin on the lower shelves and work upwards towards the highest shelf, this helps to select the correct shelf position without wasting valuable display area.
- Do not exceed 105Kg of product loading per shelf.
- Do not exceed 500Kg of product loading per door.