> Manual IWC


Breezair®
Installation & Operation Manual
Breezair
Auto
Man
AIRC
COOL
FROST
Stop:23:50
Industrial Wall Control

> Manual IWC

Breezair® Safety / Kit Components 1

SAFETY

Please read this manual carefully. Your failure to do so could result in injury to you or damage to the cooler and property.

Disconnect electrical power at the fuse or circuit breaker box and turn OFF the isolating switch located inside the cooler on the Electronics Module before you begin to install the cooler.

Always comply with your local laws and safety regulations.

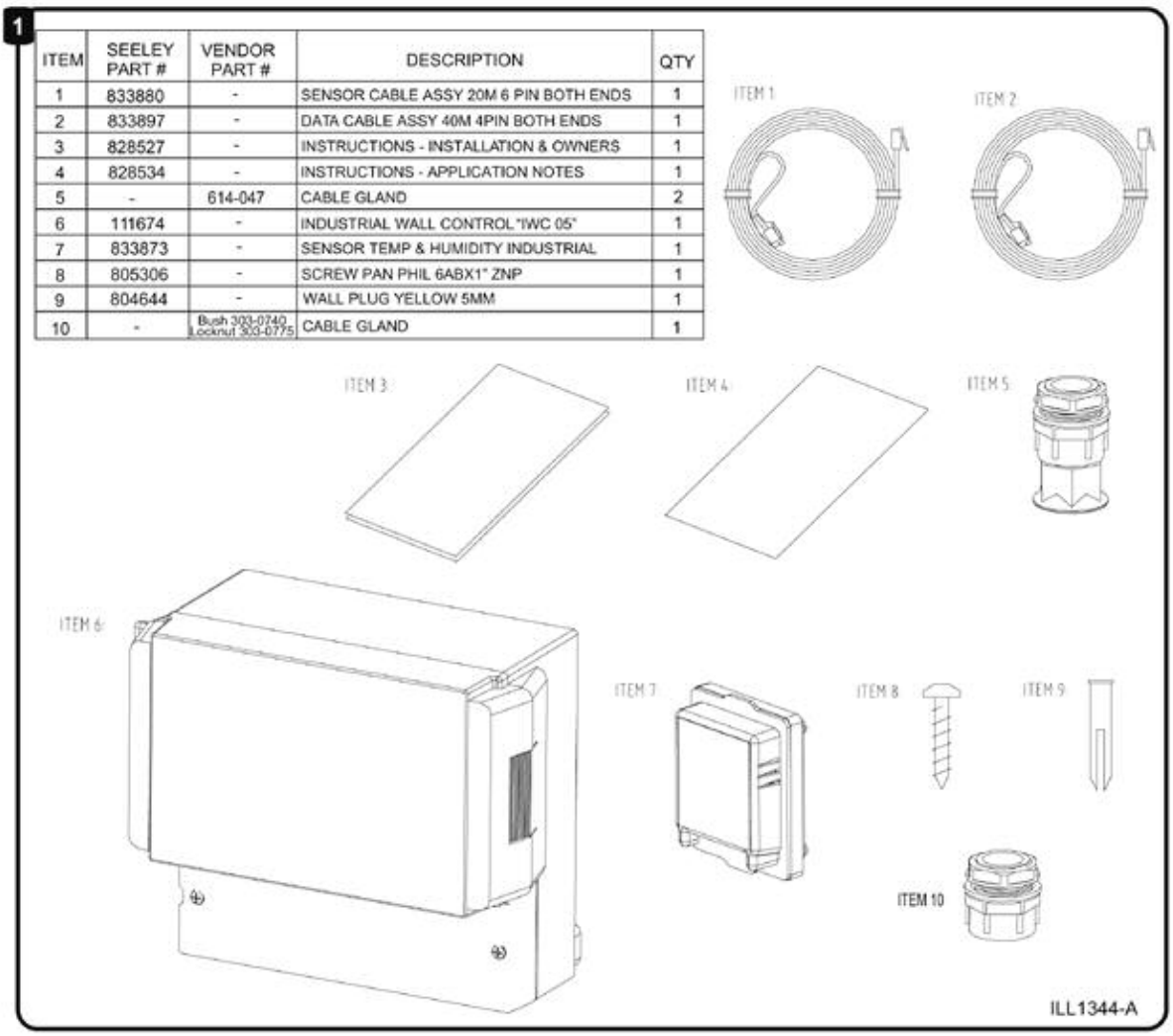
INTRODUCTION

The Breezair Industrial Wall Control (IWC05) is for use with Breezair Evaporative Coolers only. It may be used to control a single cooler, or when used in conjunction with the Breezair Smart Hub it can simultaneously control up to 41 coolers on a single installation. The IWC05 uses a remote sensor to sense temperature and humidity, and can be programmed to automatically adjust cooler performance to control either temperature, humidity or both. The IWC05 is programmable over 7 days of operation, with each day able to have different settings of temperature, humidity, ON time and OFF time. Any day can be programmed to remain OFF.

KIT COMPONENTS

1

ITEM	SEELEY PART #	VENDOR PART #	DESCRIPTION	QTY
1	833880	-	SENSOR CABLE ASSY 20M 6 PIN BOTH ENDS	1
2	833897	-	DATA CABLE ASSY 40M 4PIN BOTH ENDS	1
3	828527	-	INSTRUCTIONS - INSTALLATION & OWNERS	1
4	828534	-	INSTRUCTIONS - APPLICATION NOTES	1
5	-	614-047	CABLE GLAND	2
6	111674	-	INDUSTRIAL WALL CONTROL "IWC 05"	1
7	833873	-	SENSOR TEMP & HUMIDITY INDUSTRIAL	1
8	805306	-	SCREW PAN PHIL 6ABX1" ZNP	1
9	804644	-	WALL PLUG YELLOW 5MM	1
10	-	Bush 303-0740 Locknut 303-0775	CABLE GLAND	1



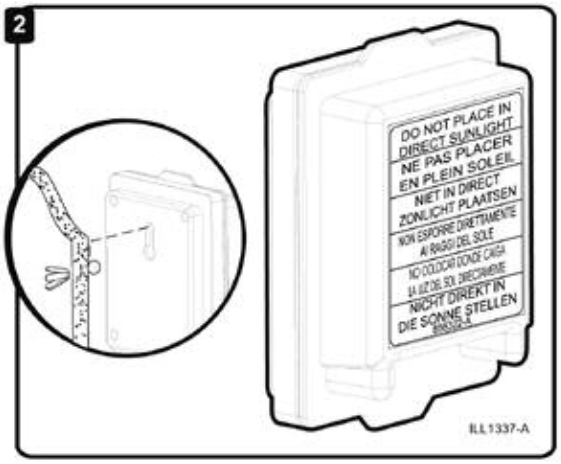
Breezair Locating the Sensor & Wall Control 2

REMOTE SENSOR LOCATION
Mount the remote sensor in a central location within the room or area where you want the temperature to be controlled.

When selecting a position for the remote sensor **avoid** the following locations:

- Direct sunlight
- Outside walls
- Direct heat sources
- Direct cool air sources.

Mounting the sensor in a position near any heat source or cool air source will affect its ability to control temperature.

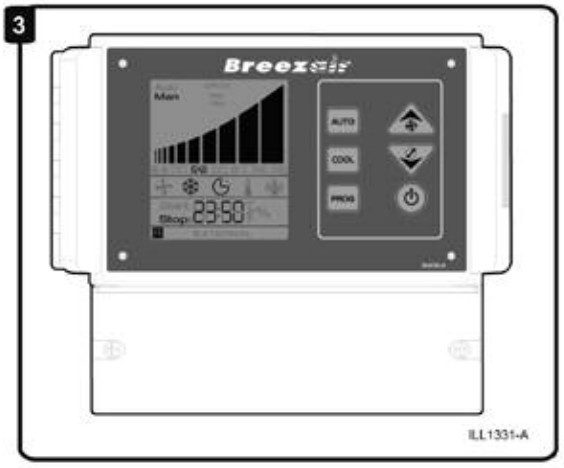


INSTALLING THE WALL CONTROL
Install the Wall Control about 1.5 metres above the floor in a place that is easily accessible.

WARNING! - *DO NOT USE EXTERNAL INPUTS FOR FIRE ISOLATION FOR THE COOLER.*

WARNING! - *ALL CONNECTIONS TO BE HIGH QUALITY CONNECTIONS*

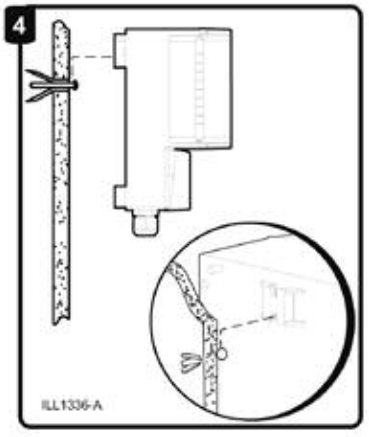
WARNING! - *DO NOT RUN COMMUNICATION CABLES WITH HIGH VOLTAGE POWER CABLES.*

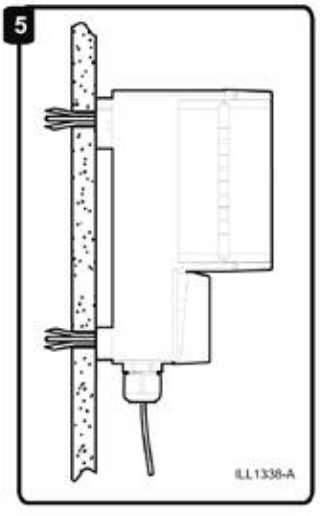


To mount the Wall Control, follow template and dimensions on the under-side of the Wall Control box. Fix securely to the wall (Fig 4&5).

Connect the cables to the Wall Control through the glands supplied

Cable glands approved for this product as per RS components Catalogue April 2004, part no. 614-047.





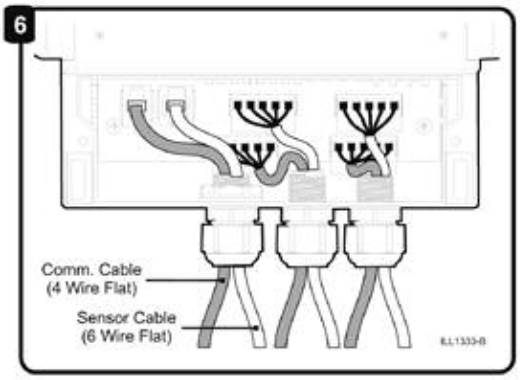
Breezair® Installing the Wall Control 3

The Breezair communications cable (4 way plug) and the Breezair sensor cable (6 way plug) will both pass through one gland. See Fig 6 for recommended cable entry utilisation.

Connect cables, plugs and glands as indicated in the wiring diagram (Fig 6&7).

Cables are to be a maximum of 1.5mm² insulated for use with the input and output control signals.

6



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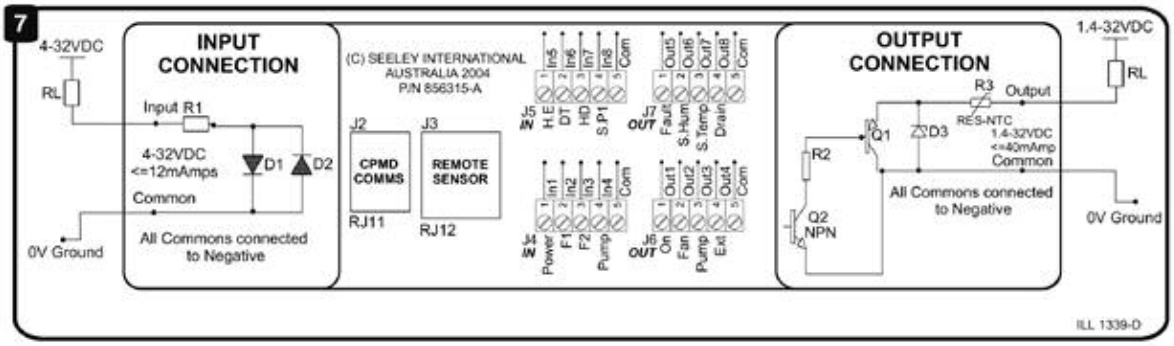


Terminals Legend

SYSTEM INPUTS:

J4	- 1	Power	➤	Turns cooler OFF regardless of other external or internal commands.
	- 2	F1	➤	Selects fan speeds 1 or 2 or 3 using binary code from external source.
	- 3	F2	➤	As above.
	- 4	Pump	➤	Turns pump ON and OFF from external source.
	- 5	Com	➤	Common, negative.
J5	- 1	H.E.	➤	Enables humidity sensing to over-ride external commands and control pump.
	- 2	D.T.	➤	Enables pad drying at end of use (when in Auto Timer mode).
	- 3	HD	➤	Disables humidity control of pump in Auto mode when inside T low and H low.
	- 4	SP1	➤	Spare.
	- 5	Com	➤	Common, negative.

SYSTEM OUTPUTS (each up to 40 mA, 40V DC):

J6	- 1	On	➤	System ON or OFF.
	- 2	Fan	➤	Fan ON or OFF.
	- 3	Pump	➤	Pump ON or OFF.
	- 4	Ext	➤	External control active or in-active.
	- 5	Com	➤	Common, negative.
J7	- 1	Fault	➤	Fault or No fault in system.
	- 2	S.Hum	➤	Serial humidity % signal.
	- 3	S.Temp	➤	Serial temperature °C signal.
	- 4	Drain	➤	Signal appears after drain valve open and time delay expired.
	- 5	Com	➤	Common, negative.

AT POWER UP

When power is first applied to the Wall Control there are 3 possible responses depending on what is connected to the Wall Control.

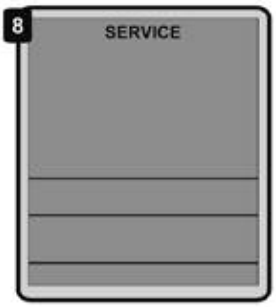
1. When the Wall Control is connected directly to an ICON cooler without any Hubs, either on a single cooler installation or during individual cooler commissioning on a multiple cooler installation, the Wall Control will display 'SERVICE' (Fig. 8). Press and hold the ▼ button until the word 'SERVICE' disappears from the display. This will take approximately 7 seconds. This transfers ICON specific operating requirements to the Wall Control. To complete this transfer see "CHANGING SPEED TABLE FOR *ICON* COOLERS" below.

2.a When one TBA cooler is connected the Wall Control will display the OFF state.
2.b When a Hub (Kit #105949) is connected the Wall Control will display the OFF state.

3. When one or more Smart Hubs (Kit #111070) are connected the Wall Control will display the identity of every Smart Hub as it is detected by the Wall Control during initialization (Fig. 9). The Wall Control starts at Hub 0 and can count up to Hub 9, ie. a total of 10 hubs.

When the Wall Control has completed it's initialising function and the last Hub is displayed, press the PROG button to accept. The Wall Control now enters the OFF state and will display just the day and the time.

Upon restoration of the power following subsequent power failures, the Wall Control will initialise each time, but will automatically revert to the "OFF" state provided that no changes have occurred to the number of Smart Hubs.



Example of a 2 Hub project that contains Hub 0 & Hub 1.

CHANGING SPEED TABLE FOR *ICON* COOLERS

When the Wall Control is connected to an ICON evaporative cooler a different speed table must be selected. If this speed table is not selected the cooler will not operate at its optimum performance. To select the correct speed table follow these steps:

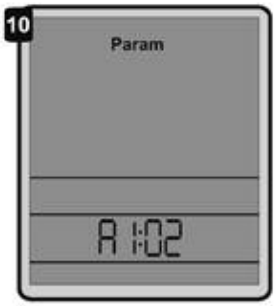
1). Within 4 minutes of mains power being switched on at the Electronics Module *Parameter Programming Mode* must be entered by pressing and holding the AUTO Button for at least 4 seconds, and then while still pressing the AUTO button press and release the ▼ button. The display will show **Param** and **A1:02** (Fig. 10).

2). Press the ▲ button until the display shows **Param** and **A2:00** (Fig. 11).

3). Press the AUTO button. The display will now show **Value** and **A2:00** (Fig. 12).

4). Press the ▲ button until the display shows **Value** and **A2:01** (Fig. 13).

5). Press the AUTO button to accept this new value, then after a delay of a few seconds press the ⏻ button.



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SETTING THE CLOCK

IMPORTANT! ***Please read the application notes before programming this controller.***

When the Wall Control is first installed, it will show four flashing clock digits. Set the clock on the Wall Control before proceeding with any other programming.
Programming can only be done with the Wall Control switched OFF. Hold the PROG button down for over 3 seconds, until the clock symbol flashes.
Press the AUTO button to accept. Four digits will show with the first digit flashing (Fig 14).

Use the ▼ and ▲ buttons to change the first digit and the AUTO button to enter. Repeat this for each digit to set the 24-hour time. The M (Monday) symbol will then start flashing (Fig 15).

Use the ▼ and ▲ buttons to change the day of the week and press the AUTO button again to enter the OFF mode. While the cooler is OFF it will display the current time and day.

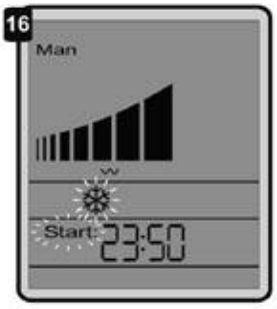
Note: After replacing the battery reset the clock time.

TURNING THE COOLER ON

The Wall Control can be switched ON and OFF by pressing the ⏻ button. The Wall Control will remember the setting from when the cooler was last used.

PREPARING TO START

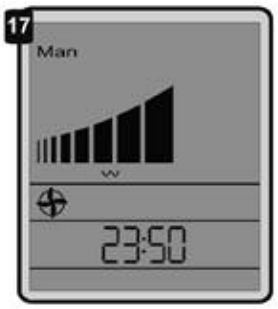
Whenever you select AUTO mode or COOL in MANUAL mode, the cooler will take a few minutes to start as it fills with water and saturates the cooling pads. This time will be decreased if the tank is full or the cooler has only recently been turned OFF. During this time the ❄ and **Start:** symbols will flash on the display (Fig 16).



MANUAL MODE

With the Wall Control switched ON, press the AUTO button until **Man** is shown on the display (Fig 17).

You may then press the COOL button to switch between COOL ❄ and VENT ✣ (where fresh air is being delivered but not cooled).
When COOL or VENT has been selected, the Wall Control will maintain a constant fan speed as shown by the bar graph on the display.
To increase or decrease the fan speed, press either the ▼ or ▲ button.



AUTO MODE

To select the AUTO mode press the AUTO button until **Auto** is shown on the display (Fig 18).

In AUTO mode the cooler will remember the last setting used and try to achieve this setting. Operation may vary depending on ambient conditions. Pressing the ▼ and ▲ buttons will have no effect when the cooler is in AUTO mode. (See Temperature Control Program on the following page).

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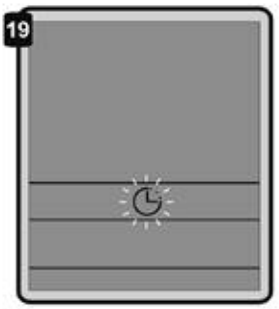
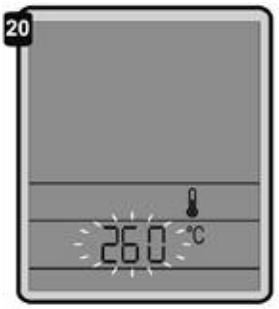
PROGRAMMING THE WALL CONTROL
The Wall Control can only be programmed in the OFF mode. If the control is ON, press the ⏻ button to enter OFF mode.
To enter the PROGRAM mode hold the PROG button down for over 3 seconds. The 🕒 symbol will start flashing. Use the ▼ and ▲ buttons to scroll through the clock, temperature, humidity, time and drain signal delay programs and press the AUTO utton to select any one.

24 HOUR CLOCK PROGRAM
To program the clock press the AUTO button when the 🕒 symbol is flashing (Fig 19).
Refer to page 5 for instructions on setting the current time and day.



TEMPERATURE CONTROL PROGRAM
The Wall Control can monitor the room temperature and adjust the operation of the cooler to hold a set temperature. To do this, hold down the PROG button for over 3 seconds to enter PROGRAM mode. Press the ▼ or ▲ button until the 🌡 symbol is flashing, then press the AUTO button.
℃ or ℉ will flash. Select the desired temperature scale using the ▼ and ▲ buttons and press AUTO .
The current temperature setting will flash (Fig 20).
Adjust the setting to the desired temperature level by pressing or holding down the ▼ and ▲ buttons.

Press the AUTO button to accept the temperature setting and return to the OFF mode. When the cooler is in AUTO mode, it will adjust the fan speed and cooling to achieve the new temperature setting. The MANUAL mode ignores any temperature settings.



HUMIDITY CONTROL PROGRAM

Humidity Control has 2 modes.
MODE 1: The default mode provides a maximum Humidity Limit per the set point within the Wall Control. In this mode the AUTO control function will respond to the temperature sensor to achieve comfort conditions in the building according to the temperature set point in the Wall Control. However the pump will stop (and therefore no moisture is added) when the room humidity rises to the humidity set point in the Wall Control.

MODE 2: The alternative mode allows the cooler to attempt to satisfy both temperature and humidity, with humidity over-riding temperature when the temperature is satisfied but the humidity is not.

The choice of which mode to use is made by changing parameter B4. See instructions below. In the MANUAL mode no humidity control is enabled.

To change between **Humidity Mode 1 and Mode 2**:
1/ Disconnect power to the cooler, then reconnect power. Then, while the IWC is in the OFF state, press and hold the AUTO button for 3 seconds and continue to hold whilst you press the ▼ button. Display will now show **A1:02** and **PARAM**.

2/ Press the ▼ button. Display will now show **B5:0X** and **PARAM**. Press the ▼ button again. Display will now show **B4:00** and **PARAM**.

3/ Press AUTO . Display will now show **B4:00** and **VALUE**. Press the ▲ button. Display will now show **B4:01** and **VALUE**. Press AUTO to set the value. Display will show **B4:01** and **PARAM**.

4/ Press the ⏻ button to enter the OFF state. Full humidity control is now enabled according to Mode 2 above.

To change back to mode 1 follow the same steps as above and change value back to B4:00

To change the **Humidity Set Point:**
1/ Hold down the PROG button for over 3 seconds to enter PROGRAM mode.

2/ Press the ▼ or ▲ button until the 💧 symbol is flashing, then press the AUTO button. The current humidity setting will flash as two digits on the clock (Fig 21).

3/ Adjust the setting to the desired humidity level by pressing or holding down the ▼ and ▲ buttons. Press the AUTO button to accept the humidity setting.

4/ Press the ⏻ button to return to the OFF state.

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HUMIDITY CONTROL PROGRAM

When full temperature and humidity control is selected (mode 2) via parameter B4, the cooler will function as follows in AUTO: When the room temperature falls below the temperature set point the fan and pump will normally stop. But if the room humidity is below the humidity set point, they will remain ON to add moisture to the room to satisfy the humidity requirement. The function of the fan and pump under this condition is shown in Fig. 22.

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Room Humidity minus Set Humidity (%RH)	PUMP STATUS	FAN STATUS
-20% or less	ON	Speed 3
-10% to -20%	ON	Speed 2
0% to -10%	ON	Speed 1
+10% to 0%	OFF	OFF

NOTE: The external humidity and temperature sensor requires air moving freely through the sensor housing to maintain accurate readings of the temperature and humidity. The sensor should be periodically checked to ensure that the air inlets are not blocked by dust. If they are, try to clear the dust away but do not open the sensor housing.

PLEASE ALSO REFER TO APPLICATION NOTES PAGE 2 FOR COMPLETELY DISABLING HUMIDITY CONTROL.

7-DAY TIMER PROGRAM

The cooler can be programmed to operate at specific times throughout the week.

1/ The cooler must be in the OFF mode to be programmed. If the cooler is ON, press the ⏻ button to enter OFF mode. Hold down the PROG button for over 3 seconds to enter PROGRAM mode.

2/ Press the ▼ or ▲ buttons until the display shows 🕒 and Start: 00:00 is flashing (Fig 23).

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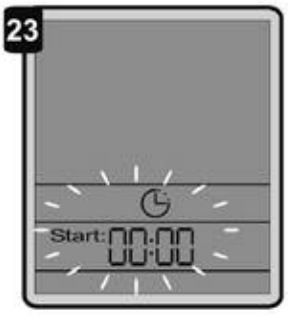

3/ Press the AUTO button to select the TIMER mode. M (Monday) will flash. Select the day you want to program, using the ▼ and ▲ buttons and press AUTO

4/ Use the ▼ and ▲ buttons to select On or OFF and press the AUTO button (Fig 24).

5/ If you select OFF you can either select another day to program, or exit PROGRAM mode by pressing the ⏻ button. If you select On, Start: 00:00 will show with the first digit flashing. Refer to page 5 for instructions on how to set the time for the cooler to start operating.

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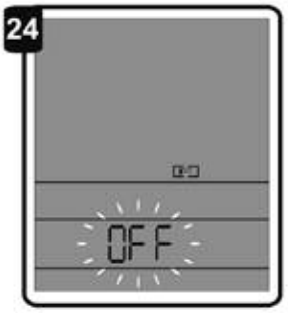

6/ Repeat this process when Stop: 00:00 shows to set the time for the cooler to stop operating.

7/ After setting the time, °C or °F will flash. Refer to page 6 for instructions on how to set the temperature and humidity settings for the cooler operation.

8/ Once you have set the humidity, either select another day using the ▼, ▲ and AUTO Buttons or press the ⏻ button to exit PROGRAM mode.

When the cooler is on, the display will show a rectangle around all days which have a TIMER program (Fig 25).

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On days in which no settings are programmed, the cooler may run according to the global settings programmed into the IWC. In order for the cooler to be run in AUTO on any day, the day must be programmed ON.

In order for the cooler to run according to the global settings on any day, the day must be programmed ON, and the start and stop times must be set to 00.00.

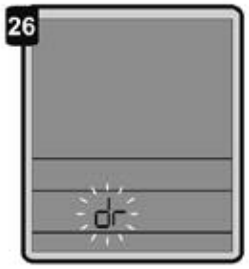
When any day is programmed to OFF, the cooler will ***not*** run in AUTO. The cooler can be run in MANUAL at any time, regardless of the programs set.

Any day that has start and stop times set and the day switched ON will show brackets for the day. Any day that has start and stop times set and the day switched OFF will show no brackets. Any day that has start and stop times set to 00.00 will show no brackets.

These programs will be ignored if the cooler is in MANUAL or EXTERNAL mode during the programmed times. This feature allows different settings for every day - start/stop, temperature & humidity.

DRAIN SIGNAL DELAY PROGRAM
The cooler will periodically drain itself of water in order to ensure clean operating conditions. When it does, it sends a signal allowing a scavenger pump or other control to begin operating (terminal J7-4). The drain delay feature allows time for the drained water to travel from the cooler to the scavenger pump before the scavenger pump begins to operate.
To set a delayed drain mode, enter the PROGRAM mode and press the ▼ or ▲ button until dr flashes on the clock display (Fig 26).

Press the AUTO button to confirm.The current time delay will flash as four digits on the clock. Adjust the time delay using the ▼ and ▲ buttons up to a maximum of ten minutes. Press the AUTO button to lock the time delay and return the cooler to the OFF mode. Disconnect and reconnect the power for this change to take effect.



EXTERNAL CONTROL
Some of the functions of the Wall Control can be controlled by an external device, such as a PLC or Building Management System. In this case EXTERNAL will show on the display (Fig 27). In EXTERNAL mode, all temperature and timer settings will be ignored. Humidity settings will be ignored unless the external system enables humidity control.

REMOTE ON/OFF
External systems may remotely switch the cooler ON or OFF. If the cooler has been turned off remotely, this will show on the display by the R symbol (Fig 28).

External systems may also control the fan speed of the cooler, although there are only 3 speed settings available by external control. The bar chart on the Wall Control will show the equivalent speed setting.

LOW BATTERY WARNING
The "Battery Low" message will appear on the Wall Control screen when power resumes after a very long power OFF period in which the battery voltage has fallen below a functional level. (Fig. 29). In this event, first reset the clock. Then start the plant. The plant will not re-start until the clock has been reset. It may not be necessary to change the batteries at this time. Should the "Battery Low" message appear repeatedly after short duration power failures, then replace the battery.

The battery: The lithium battery in the Wall Control is a long life device that powers the real-time clock only, during prolonged power "Off" periods. **IT IS NOT A POWER FAILURE BACK-UP BATTERY AND IS NOT ON TRICKLE CHARGE.** Under normal conditions the battery should have a life of about 10 years.

SERVICE MODE - SINGLE COOLER INSTALLATION
When a fault has been recognised by the Wall Control the word **SERVICE** appears on the screen (Fig 30)

When **SERVICE** is displayed it may be necessary for you to phone your Service Agent. However, before doing so, turn the Wall Control OFF. You will notice a number flashing at the bottom of the screen (Fig 31). This number indicates the cause of the fault. See "Service Guide CMPD" for fault codes.

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SERVICE MODE - SINGLE COOLER INSTALLATION
Please write this number down, then push the ⏻ button to turn the cooler back on. If after a short time **SERVICE** is again shown on the display, turn the Wall Control OFF and check if the flashing number is the same. If so check the following possible problems. However, we do suggest that any checks be carried out by an authorised dealer or service agent.

If '02' is displayed
- Check that the water supply valve to the cooler is turned on.
- Check that your local water supply is on.

If '04' is displayed
- If your cooler is fitted with a drain valve, check that the drain is not blocked.

If '09' is displayed
- Check to ensure that the temperature and humidity sensor is connected.
- Check the interconnecting cable for faults.

If the problem continues contact your Dealer or Service Agent. You will need to quote the flashing number that you wrote down.

SERVICE MODE - MULTIPLE COOLER INSTALLATION
This section ONLY applies to any new installations commissioned since January 2006, in which IWC-05's (part no. 111087) and Smart-Hubs (part no. 111070) are installed. Installations prior to that date do NOT have any fault indicating features when multiple Breezair coolers are connected to original hubs.
Identification labels "IWC-05" and "Smart-Hub" are attached to the new devices.

When a fault occurs in any cooler, the word **SERVICE** appears on the Wall Control display. (Fig. 32) The system will continue normal operation.

In cases where Smart- Hub kits are installed (and only in such cases) the fault location can be viewed by either pressing the PROG button or switching the wall control OFF (Fig. 33). The fault location display shows the Hub number (0 - 9) and the cooler number (1 - 5) on that hub.

If more than one fault exists, pressing the ▼ or ▲ buttons shows other fault locations.

Note! Fault codes that identify the nature of the fault will not be shown; however the nature of the fault can be found at the faulty cooler(s) on their CPMD Electronic Module(s).

DRAIN MODE
Pressing the ▼ and ▲ buttons at the same time will open the drain valve and empty the water in the tank. The Wall Control will display dr on the screen. Draining the water will leave the tank clean and dry until it is next used. The drain valve will remain open until the cooler is re-started.

POWER FAILURES
Any power failure of any duration will shut down the air cooling system and will require manual re-start. Power failure means a complete loss of mains power to the air cooling system. It may be caused by external factors over which you have no control, or it may be caused during the commissioning procedure by the deliberate action of the technician.

Whatever caused the power failure, and whatever mode the cooling system is set to (MANUAL or AUTO), the system will require manual restarting. **Momentary power failures (less than 1 second) may restart automatically when power is restored.** EXTERNAL control mode will resume automatically after power has been restored if the external commands are present. The lithium battery will maintain the clock during prolonged power OFF periods.

REFER TO COOLER MANUAL FOR TROUBLE SHOOTING GUIDE.

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Breezair® Exploded View of the Wall Control 10

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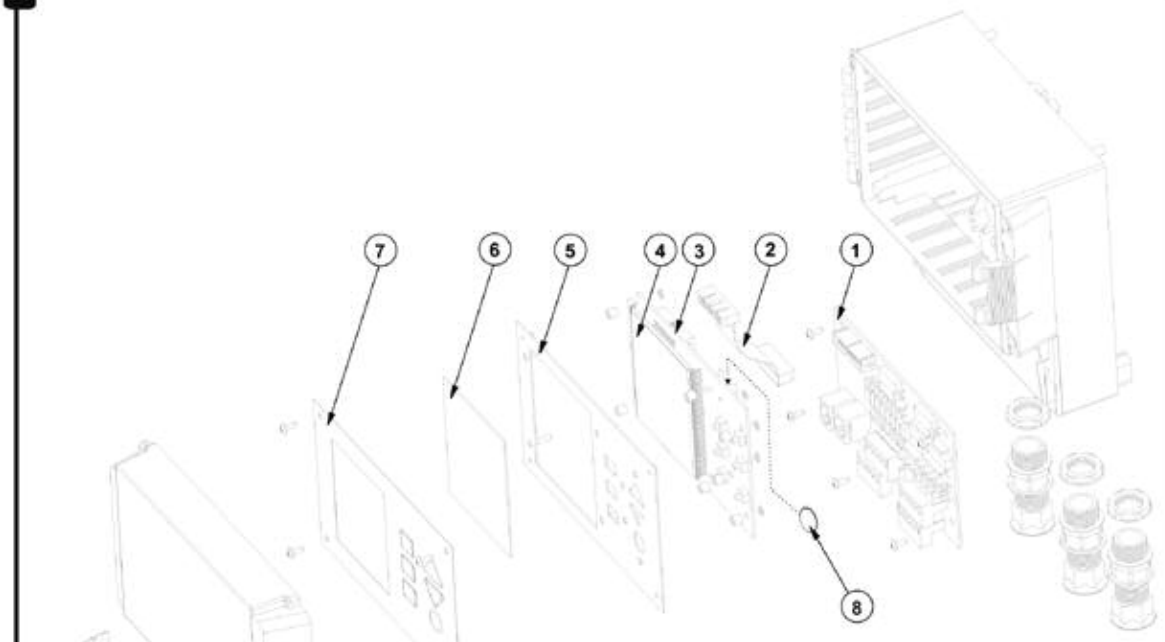

No.	Description	Seeley Part no.
1	PCBB Terminal	670164
2	Ribbon Cable ASM	833941
3	PCBA Control	670157
4	LCD Assembly	841328
5	Plate Facia	822327
6	Window Facia Screen	859029
7	Decal Facia	841311
8	Battery (replacements not supplied by Seeley)	+3V CR 2032 (stamped on battery)

ILL1342-B