AIRIUS®

THE THERMAL EQUALIZER

OPERATING AND INSTALLATION MANUAL
FOR MODELS PEARL S1 & S2.

OPERATING AND INSTALLATION MANUAL

1. Technical information
2. Warranty and Refurbish Program
3. Exploded view of the AIRIUS SYSTEM®
4. General Installation and Operating guidelines
5. Hanging the AIRIUS SYSTEM
6. Placement of the AIRIUS SYSTEM
7. Suspended Ceiling Kit Assembly Instructions
8. Safety Information and Warnings

IMPORTANT

THIS MANUAL MUST BE READ CAREFULLY AND FULLY BEFORE ATTEMPTING TO HANG, FIT, OR OPERATE AN AIRIUS SYSTEM

USA and FOREIGN PATENTS PENDING

AIRIUS SYSTEMS are extremely efficient, quiet and unobtrusive Air Turbines that de-stratify and balance room temperature, generating a narrow vertical air column which conditions the room environment and reduces the energy consumption of an HVAC system by as much as 35%.

1. TECHNICAL INFORMATION

The AIRIUS SYSTEM is produced in three single-phase voltages: 120 VAC, 230 VAC, and 277 VAC. Within each voltage there are multiple fan motor wattages. These different wattages produce varying RPM (Revolutions Per Minute) and the different RPM produce different rates of air flow to accommodate different heights from which the AIRIUS SYSTEM system will be installed in the ceiling. The heights are identified by the Model Number in Feet (10 feet = 3 Meters)

MODEL NUMBER - SERIAL NUMBER - MANUFACTURE INFORMATION

ELECTRICAL INFORMATION HAZARD INFORMATION IS LOCATED ON LABELS AT THE EXAUST END OF THE APPLIANCE (THE MOTOR IS THERMALLY PROTECTED)

Model No.@230 VAC	= Motor Part No.	Hertz	Wattage	RPM
Pearl S1 (7.6M)	= FP-108 HH (S1 B)	50/60 Hz	31/35 W	1500/1650 rpm
Pearl S2 (4.6M)	= FP-108 HH (S2 B)	50/60 Hz	15/17W	1100/1250 rpm
Pearl S3 (3.0M)	= FP-108 HH (S3 B)	50/60 Hz	12/13W	900/1080 rpm

AIRIUS SYSTEM (Each Unit)

Weight - 3.75 kg

Height - 28 cms

Max Diameter - 28.6 cms

The AIRIUS SYSTEM has an Outer Shell of Recyclable PC/ABS plastic resin (Polycarbonate/Acrylonitrile Butadiene Styrene). The Inner Stator is also Recyclable ABS. The Outer Shell, Stator and Fan Blade are Fire Rated 5VA Materials
(see exploded view - 1, next page).

2. WARRANTY

3 Year Warranty:

Free replacement unit - new. Customer or Distributor to return defective units to Airius Oceania P/L carriage paid. Upon receipt, Airius Oceania P/Lwill despatch new units by return carriage paid.

3. EXPLODED VIEW

Voltage - 230 VAC / Weight - 3.75 kg / Height - 28 cms / Diameter - 28.6 cms

Image not available online.

The above graphic contains all the descriptions/components of the AIRIUS SYSTEM

Note: ALL SCREW SIZES ARE ENGLISH THREAD with TORX ¤ HEADS
ENGLISH SIZED HEX WRENCHS CAN BE SUBSTITUTED TO OPERATE SCREWS

4. INSTALLATION/OPERATING GUIDELINES

(For installation information please refer to the 'Installation Guide' which can be found on the Airius website - www.airius.com.au)

POWER CORD

The power cord is a 3 wire 18 AWG (or 16AWG) 300 VAC rated electrical cord
UL rated in North America (NA) as SJT or for CE/EU compliance rated as HO5VV

The three wires in the power cord are color coded to insure proper wiring as follows:

BLACK or BROWN = HOT/ELECTRIFIED/LIVE
WHITE or BLUE = "N" NEUTRAL/RETURN PATH
GREEN or YELLOW-GREEN = GROUND/EARTH

The cord is attached to the Fan Motor via two power leads with insulated $^1/_4$" quick connects.

UNMARKED motor lead - HOT/LIVE
MARKED "N" motor lead - NEUTRAL
GROUND/EARTH is attached to a boss on the outside of the motor housing with a Star Ring # 10 Terminal and 8-32 x $^1/_4$" machine screw.

The Cord is secured in the housing by a strain relief and knotted inside the housing for additional security.

OUTLET - 230 VAC

Power Outlets (Female Connectors) to supply power to the AIRIUS SYSTEM should always be installed by a qualified electrician or similarly qualified person in accordance with national and local electrical codes.

The AIRIUS SYSTEM uses very little AMPERAGE (less than 1 amp) thus multiple outlets may be installed on one circuit. Outlets are available in many configurations, check with the local Electrical Contractor to determine preferred type for the facility. Outlets should generally be mounted vertically unless a "twist/locking" type is being used. Facilities with Fire suppression systems installed often have a master cutoff switch to Shut-off all power in the event of a fire or emergency. The electrical circuits for the AIRIUS SYSTEM should be wired through that Shut-off. Always use and review the National / Local Electrical Codes when installing the AIRIUS SYSTEM in ANY Facility.

DO NOT wire the AIRIUS SYSTEM into the Lighting circuit, as the system will cycle on and off with the lights, greatly reducing the systems effectiveness.

The AIRIUS SYSTEM is designed to operate 24 Hours-a-Day, 7 Days-a-Week (24/7) for the maximum results.

PLUG - 230 VAC

230/277 VAC (International market) no plug supplied. When fitting a plug always ensure that all relevant local regulations/electrical codes are understood and followed with care - if in any doubt seek expert guidance.

Procedure for Wiring the Plug in a Single-Phase Electrical System
Use CAUTION when wiring/attaching the Plug (Male Connector) to the AIRIUS SYSTEM or when using any Electrical Device.

1. Plug should be rated for 230 VAC (277VAC) or greater and fit properly into Outlet (Female Connector) being used to deliver power.
2. To avoid electrical shock, DO NOT plug device into Energized Outlet until all exposed wires, and connecting terminals, are enclosed by Plug Housing. See Plug Manufacturer's Instructions.
3. Locate the (3) stripped wires on the 300 VAC Rated Power Cord attached to the AIRIUS SYSTEM where the outer cord insulation jacket has been removed. Wires are coded as follows:
   Brown or Black is HOT/Positive/LIVE (the energized/electrified conductor) Blue or White is Neutral "N" (the conductor used for a return current path) Yellow-Green or Green is Ground/Earth (the conductor to connect to the Earth)
4. Using the Plug Manufacturer's Instructions, Locate the proper positions to attach the color-coded wire to the color-coded or otherwise appropriately labeled terminals on the Plug.
5. Tighten all connections. Re-assemble plug in accordance with Plug Manufacturer's Instructions.

Always hold the AIRIUS SYSTEM unit by the Bail/Crosspiece to avoid injury from moving parts.

To confirm electrical continuity, if possible, Plug the AIRIUS SYSTEM into a energized outlet, similar to the outlet installed in the ceiling, on the ground before permanently mounting the AIRIUS SYSTEM in the ceiling.

NOTE: The AIRIUS SYSTEM can be wired directly to a junction box but only by a qualified electrician or similarly qualified person. Always ensure that all relevant local regulations/electrical codes are understood and followed with care - if in any doubt seek expert guidance. Check Local Electrical Codes. The preferred system is designed with a plug for easy service and cleaning (see Cleaning). An On-Off switch must be installed in the circuit to be able to disable the power to prevent electrical hazard when servicing the appliance.

BAIL aka: HANDLE or CROSS-PIECE

The BAIL is attached with two $^{1}/_{4}$" x 20 x 1" TORX® head machine screws. The screws can be loosened to adjust the bail to the vertical so that it can be suspended from the ceiling on the provided Eyebolt.

The two Eyebolts are installed through a $^{5}/_{16}$" hole in the bail with locking nuts and washers.

NOTE: The Bail may be angled, as it is ratcheted for special situations where a vertical air column is undesirable and an angled column would be more effective.

5. HANGING THE AIRIUS SYSTEM

The AIRIUS SYSTEM is designed to be hung vertically as high in the ceiling of the facility as possible with the nozzle pointing to the floor for maximum thermal equalization.

The AIRIUS SYSTEM is designed to hang vertically and freely from the ceiling on professionally installed hardware, capable of supporting a minimum of four times the weight, 3.75 kg of the AIRIUS SYSTEM unit. Example - $^{1}/_{4}$" (7mm) diameter steel bolt is rated at 27 kg Load.

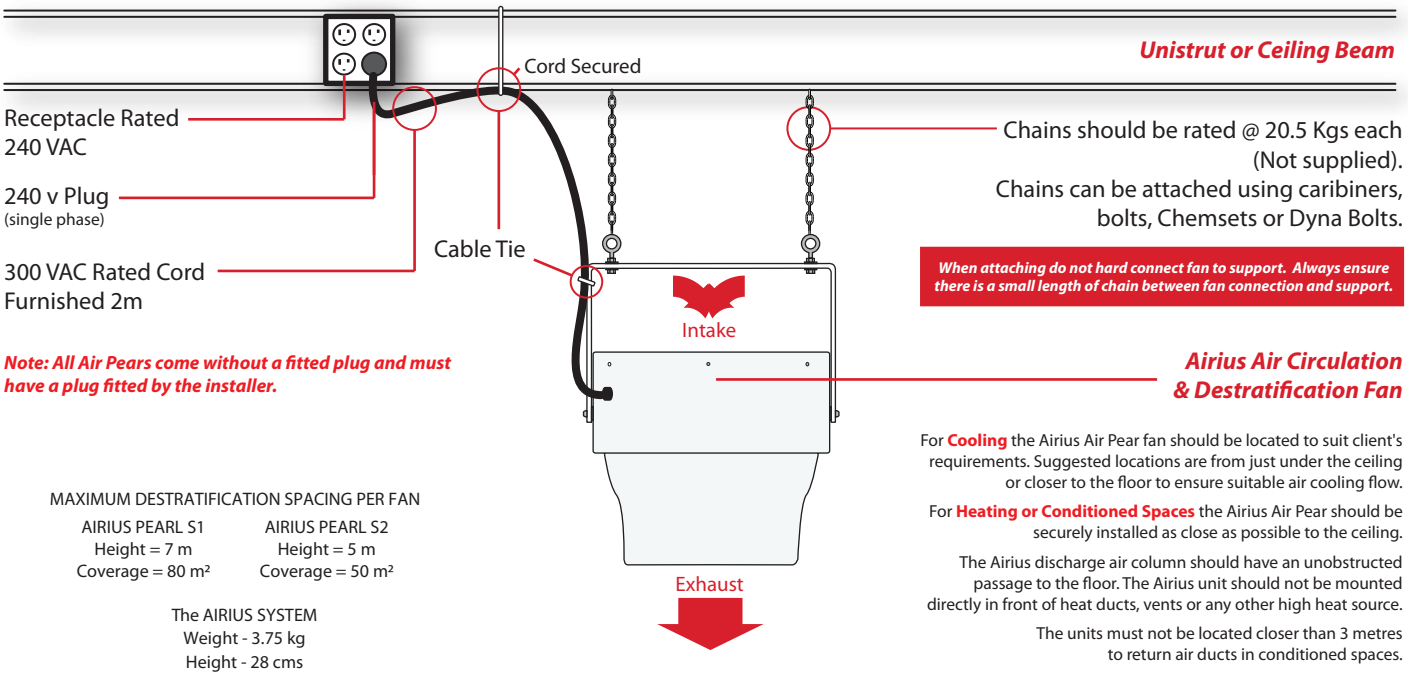
A feature of the AIRIUS SYSTEM is its flexibility. Hardware that may be used to hang the unit includes, but is not restricted to: Hooks, chains, cables, carabineers, bridal rings, beam clamps and bolts. Roof structure, building construction, electrical outlets/service, and accessability will define the appropriate hardware for each installation.

After insuring the AIRIUS SYSTEM is firmly attached and after REMOVING YOUR HANDS FROM THE UNIT, ONLY THEN is it safe to plug the unit in to the power source using the approved plug to confirm function and connectivity.

NOTE: SECURE the power cord to the ceiling structure as added security. The Cord will act as a safety leash and by securing it the possibility of the plug accidentally coming out of the outlet in the future is greatly reduced. A 20 kg rated Zip-T, several wraps of electrical tape, or mechanics wire are examples of methods of securing the

power cord.
The following graphic is an example of the typical AIRIUS SYSTEM:

THE AIRIUS SYSTEM HANGING/MOUNTING GUIDELINES



6. PLACEMENT OF THE AIRIUS SYSTEM

The AIRIUS SYSTEM performs best when installed such that the air stream/exhaust from the nozzle is unimpeded to the floor. This will insure maximum circulation and Thermal Equalization. Each System is designed to cover approximately 80 m2 from its designed ceiling height, which is about a 10 metre diameter circle for S1 Pearl . The density of the placement is a direct relationship to effectiveness,performance and savings.

Floors plans, mezzanines, office location, machinery, people placement, plumbing, lighting systems, duct work, electrical systems, natural light/air systems, indoor cranes, doors, windows, ventilation and fire suppression systems are all factors in properly locating the AIRIUS SYSTEM in the ceiling.

Floor Plans - Sketch out the floor plan of the facility, divide it graphically into 80 m² squares or 50 m² squares for S2 pearl and as closely as possible place an AIRIUS SYSTEM in the center of each square of the grid. Adjust placement to accommodate.

Mezzanines - The AIRIUS SYSTEM can be hung at an angle to throw accumulated heat out to a larger space, or hang the AIRIUS SYSTEM near the mezzanine out in the larger space to remove heat and balance room temperature.

Office - Use smaller models to control individual office spaces, or larger units to control common areas, eliminate hot and cold spots, create circulation, eliminate electrical space heaters and reduce employee temperature related issues.

Machinery - Machinery and work processes that are sensitive to temperature change will operate much more efficiently when the AIRIUS SYSTEM is operating. The flow of air should be directed to a place that will allow circulation but not interfere with the production process.

People - Most people are not comfortable in direct air flow, therefore the AIRIUS SYSTEM can be directed to a space near the person, but not directly on them. This balanced, equalised air will provide a better working environment.

Check local codes for plumbing, lighting systems, duct work, electrical systems as the AIRIUS SYSTEM must not interfere with other systems and these systems should not interfere with the airflow.

DO NOT mount the AIRIUS SYSTEM directly in front of or over a heat source.

Natural lighting/air systems (sky lights, ceiling vents) - DO NOT mount the AIRIUS SYSTEM where it can get wet or be exposed to long-term moisture. Mounting the AIRIUS SYSTEM in a high sealed sky light is an excellent way of recovering heat.

Indoor cranes and other ceiling mounted machinery - DO NOT interfere with the function of these machines. When hanging the AIRIUS SYSTEM above these machines it will not interfere with their operation.

Doors, Windows, Ventilation - The AIRIUS SYSTEM can reduce: drafts, fogging and heat loss. However The AIRIUS SYSTEM cannot over come the accumulated effects of not controlling the opening and closing of these portals. DO NOT mount the AIRIUS SYSTEM directly in front of a window or vent that is always open unless cooling is the desired result.

7. AIRIUS SYSTEM SUSPENDED CEILING KIT ASSEMBLY INSTRUCTIONS

TOOLS REQUIRED - PHILIPS SCREW DRIVER

1. Remove all components from packaging materials. Using the box the AIRIUS SYSTEM arrived in, open end up and place the 2 x 2 flat AIR INTAKE GRID over the open end of the box face down.
2. Insert the AIRIUS SYSTEM into the center hole so that the nozzle extends below the AIR INTAKE GRID and the power cord is hanging over the edge.
3. Place DOME over AIRIUS SYSTEM and align it with the screw holes. Note cutout for power cord on Dome edge. Dome should seat into the rim designed for it on the base, if necessary gently push the dome edge in until it seats into the lip.
4. Insert the Four (4) Philips screws 10/32 x 5/8 (provided) into the holes and tighten, DO NOT force screws, as galling or stripping will occur. Inserts are brass, screws will go in easily when aligned properly.
5. The Base is designed to replace a 2 x 2 ceiling tile. If replacing a 2 x 4 tile please use an additional T-bar suspension material to finish the edge. This will provide additional strength and rigidity to the existing suspension system.
6. The Base has Four Tabs located at each corner that can be drilled for additional ceiling support wires to be added if desired.

8. THE AIRIUS SYSTEM SAFETY INFORMATION AND WARNING!

EACH AIRIUS SYSTEM HAS A POLARIZED/GROUNDED PLUG TO REDUCE THE RISK OF ELECTRICAL SHOCK (NOT FITTED ON UNITS SENT TO EUROPE/MIDDLE EAST - SEE WIRING INSTRUCTIONS). THIS PLUG CAN ONLY FIT INTO THE DESIGNED POLARIZED/GROUNDED OUTLET ONE WAY. IF THE PLUG DOES NOT FIT FULLY IN THE OUTLET, CONTACT A QUALIFIED ELECTRICIAN. DO NOT ATTEMPT TO OVERCOME THIS SAFETY FEATURE.

WARNING! TO PREVENT ELECTRICAL SHOCK AND/OR INJURY:

- UNPLUG UNIT FROM POWER SOURCE BEFORE YOU MOVE UNIT, SERVICE UNIT, OR REMOVE HOUSING.

WARNING! TO REDUCE THE RISK OF FIRE OR ELECTRICAL SHOCK:

- DO NOT USE THIS PRODUCT WITH ANY SOLID-STATE SPEED CONTROL DEVICE.
- DO NOT CARRY THIS PRODUCT BY THE CORD.
- DO NOT USE THE CORD AS A HANDLE.
- DO NOT USE THE CORD TO ATTACH OR HANG THE PRODUCT.
- BE SURE TO GRASP THE PLUG, NOT THE CORD, WHEN DISCONNECTING THIS UNIT FROM AN ELECTRICAL OUTLET.
- DO NOT USE THIS PRODUCT IF IT HAS A DAMAGED CORD, FAULTY PLUG, OR ANY BROKEN HOUSING COMPONENTS.
- IF THE SUPPLY CORD, PLUG, OR HOUSING IS DAMAGED, IT MUST BE REPLACED BY THE MANUFACTURER, ITS SERVICE AGENTS OR SIMILARLY QUALIFIED PERSONS TO AVOID A HAZARD.

TO PREVENT DAMAGE, WHICH MAY RESULT IN FIRE OR SHOCK HAZARD:

- DO NOT EXPOSE THIS PRODUCT TO RAIN OR DIRECT MOISTURE.
- DO NOT IMMERSE PRODUCT INTO WATER.
- DO NOT ALLOW WATER TO DRIP INTO THE MOTOR HOUSING.
- DO NOT INSTALL OUTDOORS OR IN AN AREA OPEN TO THE WEATHER.
- SHUT-OFF POWER TO A WET MOTOR AT SOURCE BEFORE SERVICING.

- SPINNING BLADES MAY INFLICT EYE OR PHYSICAL INJURY.
- ALWAYS REPLACE A DAMAGED BLADE.
- DISCONNECT UNIT FROM POWER SOURCE FIRST.
- CONTACT MANUFACTURER OR ITS AGENT FOR REPLACEMENT BLADES.
- BLADES ARE BURN RATED 5VA FOR SAFETY.

CAUTION! SOME AIRIUS SYSTEM PRODUCTS HAVE AN UNGUARDED IMPELLER/FAN BLADE:

- DO NOT USE THESE PRODUCTS IN LOCATIONS READILY ACCESSIBLE TO PEOPLE OR ANIMALS, AS BLADES MAY INFLICT INJURY WHEN MOVING OR STATIONARY.
- TO REDUCE THE RISK OF INJURY TO PERSONS, INSTALL PRODUCT SO THAT BOTTOM OF MOVING FAN BLADE OR THE LOWEST MOVING PART IS AT LEAST 2.5 METERS ABOVE THE FLOOR OR GRADE LEVEL.

THE MOTOR IS THERMALLY PROTECTED; OVERHEATING (230F/110C) WILL CAUSE THE MOTOR TO STOP OPERATING. THE MOTOR MAY RESTART ONCE NORMAL OPERATING TEMPERATURES (195F/90C) ARE ACHIEVED. IF MOTOR FAILS TO RESTART:

- DISCONNECT MOTOR FROM ELECTRIC SOURCE AND CONTACT MANUFACTURER OR ITS AGENT

DO NOT POSTION SYSTEM NEAR:

- FURNACES, FIREPLACES, STOVES, OR OTHER HIGH TEMPERATURE HEAT SOURCES.
- DO NOT POSITION PRODUCT UNDER INFRA-RED HEAT SOURCES.
- DO NOT POSITION THE UNIT CLOSE TO OTHER OBJECTS THAT WILL INTERFERE WITH FAN OPERATION.
- DO NOT ALLOW FAN BLADES TO COME INTO CONTACT WITH OTHER OBJECTS.

SERVICE AND INSTALLATION!

NO LUBRICATION IS REQUIRED AS BEARINGS ARE SEALED. BAIL ADJUSTMENT CAN BE MADE WITH A T-30 TORX DRIVER/WRENCH, OR A 5/32" HEX WRENCH MAY BE USED. OTHER TOOLS - T-20 (7/64 H) & T-25 (1/8 H) TORX.

THE AIRIUS SYSTEM IS DESIGNED TO BE USED WITH ONLY THE ELECTRICAL VOLTAGE IDENTIFIED ON THE LABEL. THIS CAN BE LOCATED IN THE NOZZLE AND ON THE BOTTOM OF THE MOTOR, ANY OTHER VOLTAGE COULD DAMAGE THE MOTOR AND CREATE AN ELECTRICAL HAZARD.

ASSEMBLING SUSPENDED CEILING KIT: SEE ADDITIONAL INSTRUCTIONS FOR UNIT INCLUDED WITHIN THIS MANUAL.

IMPORTANT!

- PLEASE INSTALL WITH HANGING DEVICE OR FASTENER RATED FOR A MINIMUM OF 27 KILOS.
- USE CARE WHEN POSTIONING THE UNIT.
- MAKE SURE THE AIRFLOW IS UNOBSTRUCTED INTO THE TOP OF THE UNIT AND THAT THE DOWNWARD AIRFLOW IS UNOBSTRUCTED AND ALLOWED TO REACH THE FLOOR TO MAXIMIZE PERFORMANCE.
- INSTALL PRODUCT SO THAT BOTTOM OF MOVING FAN BLADE OR THE LOWEST MOVING PART IS AT LEAST 2.5 METERS ABOVE THE FLOOR OR GRADE LEVEL. MODEL NUMBERS REFERENCE RECOMMENDED CEILING HEIGHT.

CLEANING!

- UNPLUG UNIT FROM POWER SOURCE FIRST TO PREVENT ELECTRICAL SHOCK AND TO REDUCE INJURIES FROM SPINNING BLADES.
- CAUTION: STATIONARY BLADES CAN CAUSE INJURY! YOU MAY CLEAN THE PLASTIC HOUSING WITH A DAMP WARM CLOTH, USING MILD HOUSEHOLD DETERGENT ONLY.

- DO NOT USE PETROLEUM PRODUCTS, THINNERS, SOLVENTS, AMMONIAS, ALCOHOLS, OR OTHER CHEMICALS, TO CLEAN ANY PART OF THE AIRIUS SYSTEM

THE PERFORMANCE AND RESULTS OF THE AIRIUS SYSTEMS® SYSTEM ARE SUBJECT TO MANY VARIABLES SUCH AS, BUT NOT LIMITED TO, THE INTERIOR ENVIRONMENT, EXTERIOR ENVIRONMENT, CONDITION OF BUILDING STRUCTURE, HVAC SYSTEM PERFORMANCE AND/OR ELECTRICAL SERVICE AND THUS ACTUAL RESULTS MAY VERY.

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