

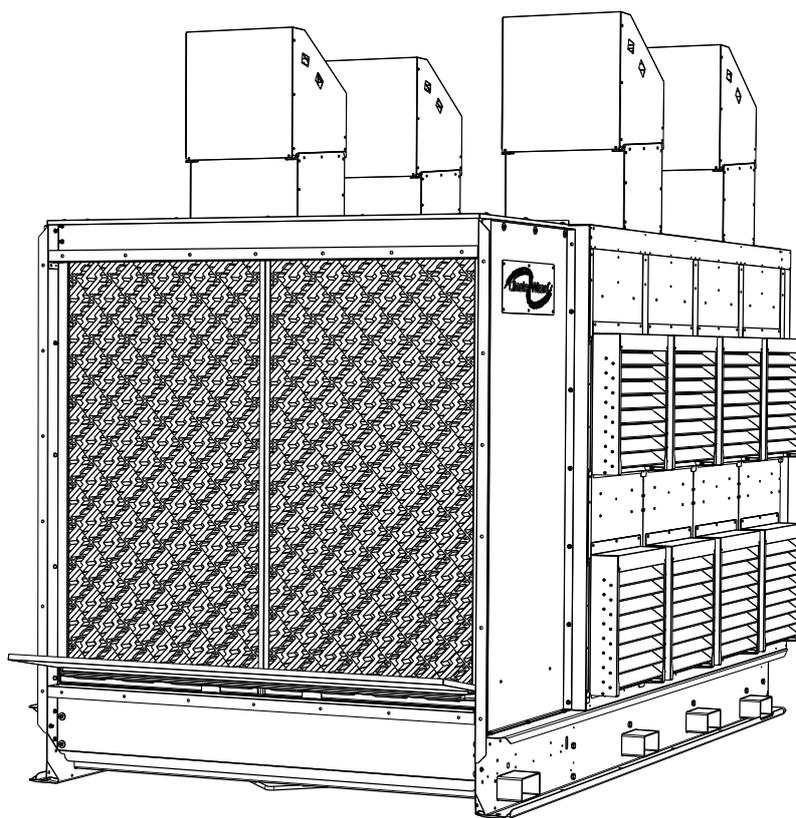


INSTALLATION & OPERATION MANUAL

CW-80, CW-80S

INCLUDING STANDARD & HIGH CAPACITY FANS OPTIONS

MULTI-MAGIC MODELS



The Climate Wizard
By SEELEY INTERNATIONAL 

Original English Instructions

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WARNING! FAILURE TO INSTALL AND COMMISSION THE PRODUCT IN COMPLIANCE WITH THESE INSTRUCTIONS, OR FAILURE TO DO THE JOB PROPERLY AND COMPETENTLY, MAY VOID THE CUSTOMER'S WARRANTY. FURTHER, IT COULD EXPOSE THE INSTALLER AND/OR THE RETAILER TO SERIOUS LIABILITY.

IMPORTANT SAFETY INSTRUCTIONS

READ AND SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE.

FOR EUROPE

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

FOR AUSTRALIA, NEW ZEALAND & OTHER NON-EUROPEAN COUNTRIES

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

Means for all pole disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.

If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

The following specifications for the cooler water supply are required:

Min Water Pressure: 100kPa (15psi)

Max Water Pressure: 1000kPa (145psi)

New hose sets supplied with the appliance are to be used and old hose-sets should not be re-used.

WARNING - TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS, OBSERVE THE FOLLOWING:

- a) Use this unit only in the manner intended by the manufacturer. If you have questions, contact the manufacturer.
- b) Before servicing or cleaning unit, switch power off at service panel and lock the service disconnecting means to prevent power from being switched on accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.
- c) Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable codes and standards, including fire-rated construction.
- d) When cutting or drilling into wall or ceiling, do not damage electrical wiring and other hidden utilities.
- e) Ducted fans must always be vented to the outdoors.
- f) Do not use this fan with any solid-state speed control device.
- g) Do not use replacement parts that have not been recommended by the manufacturer (e.g. parts made at home using a 3D printer).

IMPORTANT SAFETY INSTRUCTIONS

EMPLOYER AND EMPLOYEE RESPONSIBILITIES

The installation and maintenance of evaporative coolers at height has the potential to create Occupational Health and Safety issues for those involved. Installers are advised to ensure they are familiar with the relevant State and Federal legislation, such as Acts, Regulations, approved Codes of Practice and Australian Standards, which offer practical guidance on these health and safety issues. Compliance with these regulations will require appropriate work practices, equipment, training and qualifications of workers.

Seeley International provides the following information as a guide to contractors and employees to assist in minimising risk whilst working at height.

INSTALLER AND MAINTENANCE CONTRACTORS - RISK ASSESSMENT

A risk assessment of all hazardous tasks is required under legislation. A risk assessment is an essential element that should be conducted before the commencement of work, to identify and eliminate the risk of falls or to minimise these risks by implementing control measures. There is no need for this to be a complicated process, it just is a matter of looking at the job to be done and considering what action(s) are necessary so the person doing the job does not injure themselves.

This should be considered in terms of:

- What are the chances of an incident happening?
- What could the possible consequence be?
- What can you do to reduce, or better still, completely get rid of the risk?

SOME POINTS TO CONSIDER

- What is the best and safest access to the roof and working areas?
- If a worker is alone, who knows they are there and if they get into difficulty, how can they summon help? (Call someone on the ground? Mobile phone? etc.)
- What condition is the roof in? Should the trusses, underside or surface be checked?
- Does the worker have appropriate foot wear? (Flat sole jogger type is advisable.)
- Are all power cables / extension leads safe and appropriately rated?
- Are all ladders, tools and equipment suitable in good condition?
- Where ladders are to be used, is there a firm, stable base for them to stand on? Can they be tied or secured in some way at the top? Is the top of the ladder clear of electricity supply cables?
- Is there a roof anchor to attach a harness and lanyard to? If so, instruction should be issued for the use of an approved harness or only suitably trained people used.
- Are all tools and materials being used, prevented from slipping and falling onto a person at ground level? Is the area below the work area suitably protected to prevent persons walking in this area?
- Does the work schedule take into account weather conditions, allowing for work to be suspended in high winds, thunderstorms/lightning or other types of weather giving wet, slippery surfaces?
- Is there an on-going safety check system of harnesses, ropes, ladders and access/lifting equipment and where they exist on roofs, anchor points before the commencement of work?
- Is there a system which prevents employees from working on roofs if they are unwell or under the influence of drugs or alcohol?

- Are there any special conditions to consider i.e. excessive roof pitch, limited ground area, fragile roof, electrical power lines?

OTHER IMPORTANT REQUIREMENTS

- Never force parts to fit because all parts are designed to fit together easily without undue force.
- Never drill holes in the tank of the cooler.
- Check the proposed cooler location, to ensure that it is structurally capable of supporting the weight of the cooler, or provide an adequate alternate load bearing structure.
- Ensure the installation complies with all local and national regulations with regards to electrical, plumbing and bushfire construction requirements.
- In areas where temperatures can cause water supply pipes to freeze, a drain down facility should be provided during the installation. This drain down facility must be activated prior to freezing conditions, to avoid possible damage to the cooler components.
- Details on how to register your product warranty can be found near the end of this manual.

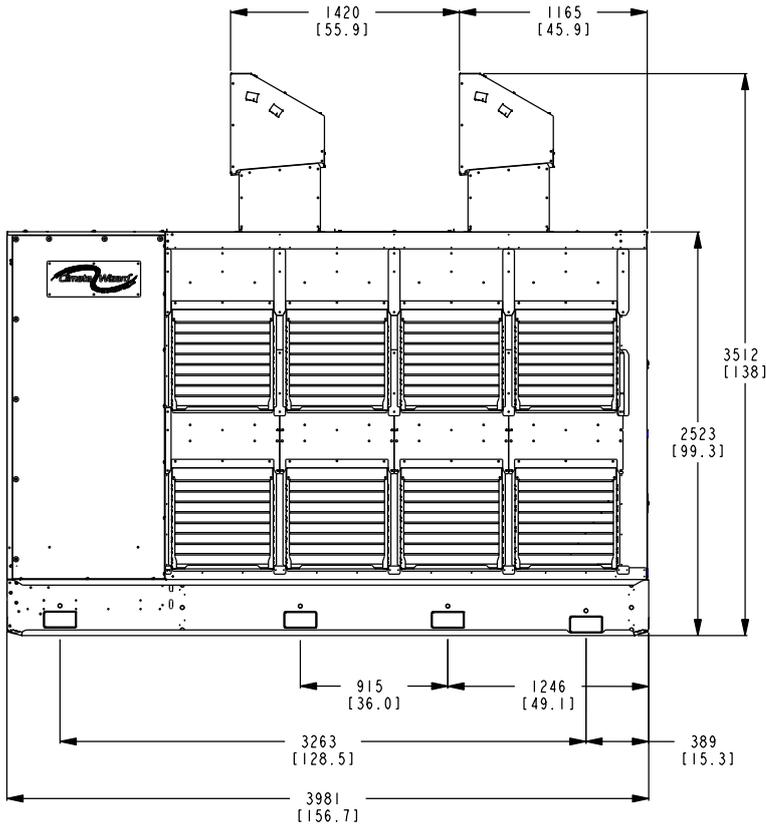
MAINTENANCE NOTE

As with any product that has moving parts or is subject to wear and tear, it is VERY IMPORTANT that you maintain the product and have it regularly serviced. It is a condition of warranty cover for your product that you comply with all of the maintenance and service requirements set out in this manual. Compliance with these requirements will prolong the life of your product. Further, it is also a condition of warranty cover that each item in the Maintenance Schedule in this manual is performed with the frequency indicated, by a qualified, licensed technician, and that the Maintenance Schedule is properly filled out (ie names, signature, date, and action taken) when the item is completed.

ANY FAILURE TO CARRY OUT THE REQUIRED MAINTENANCE AND SERVICING REQUIREMENTS, AND ANY FAILURE TO PROPERLY FILL OUT THE MAINTENANCE SCHEDULE, WILL VOID YOUR WARRANTY.

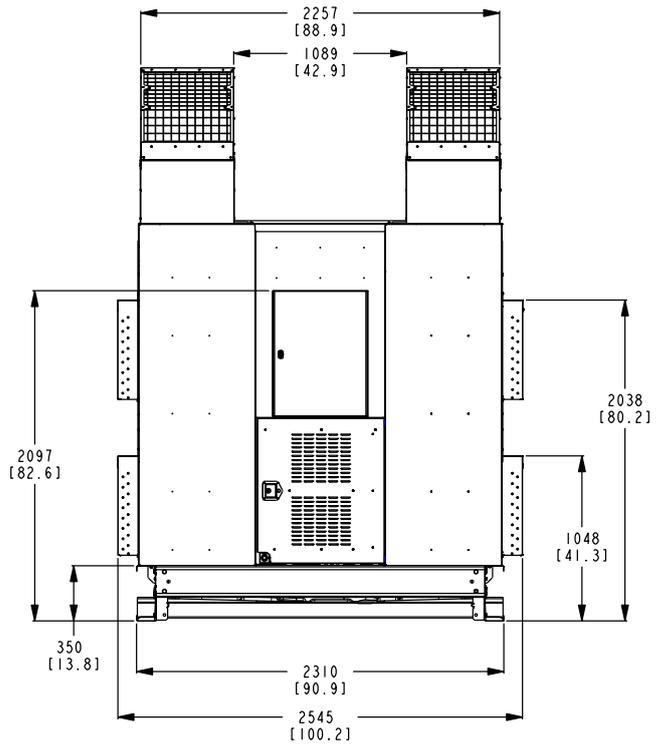
COOLER VIEWS

SIDE



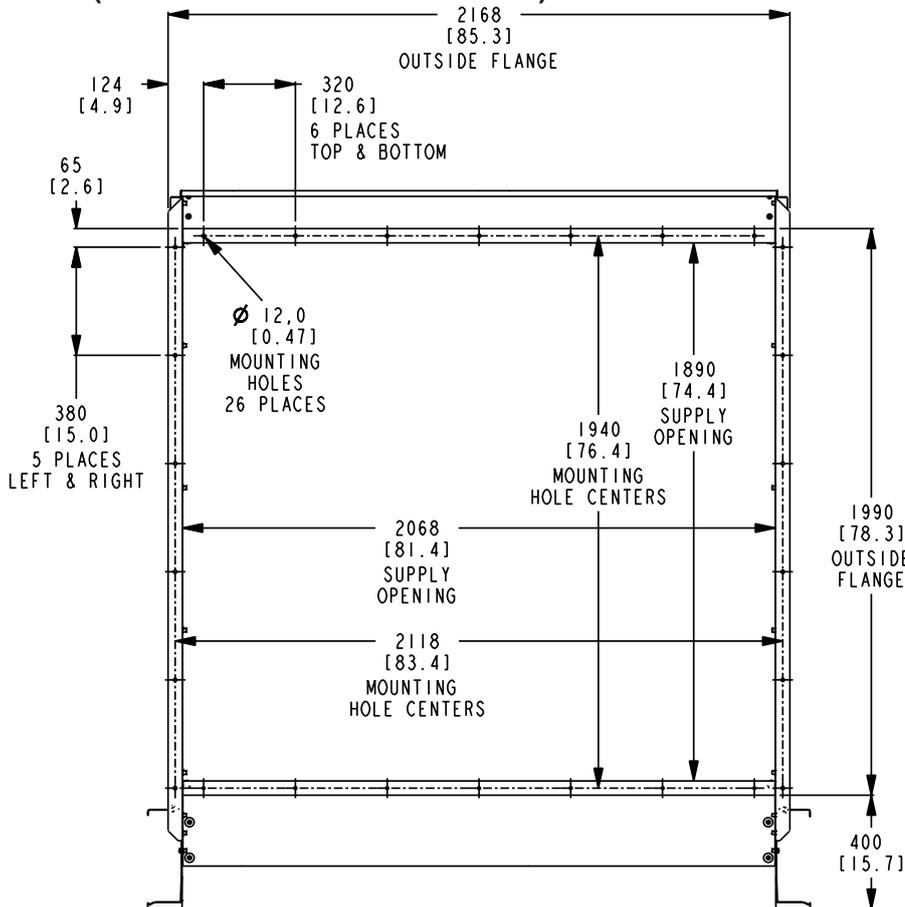
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BACK

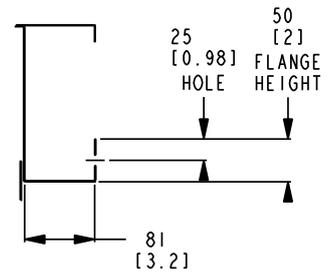


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FRONT (SUPPLY DUCT INTERFACE)

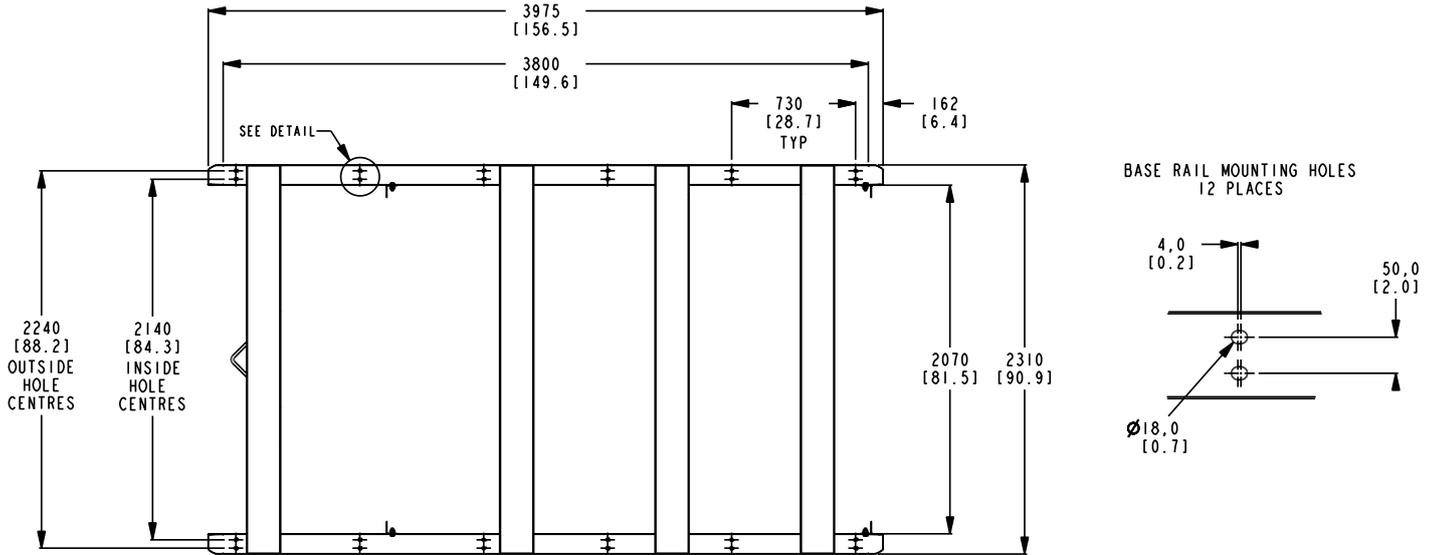


FLANGE SIDE VIEW TYP 4 SIDES



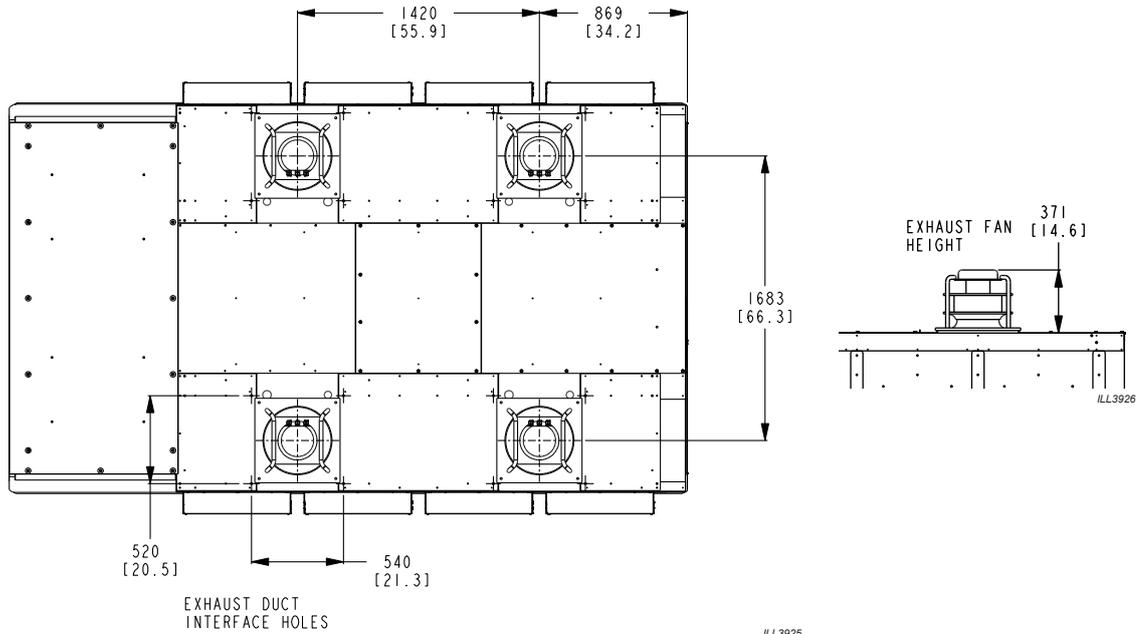
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BASE RAIL DETAILS



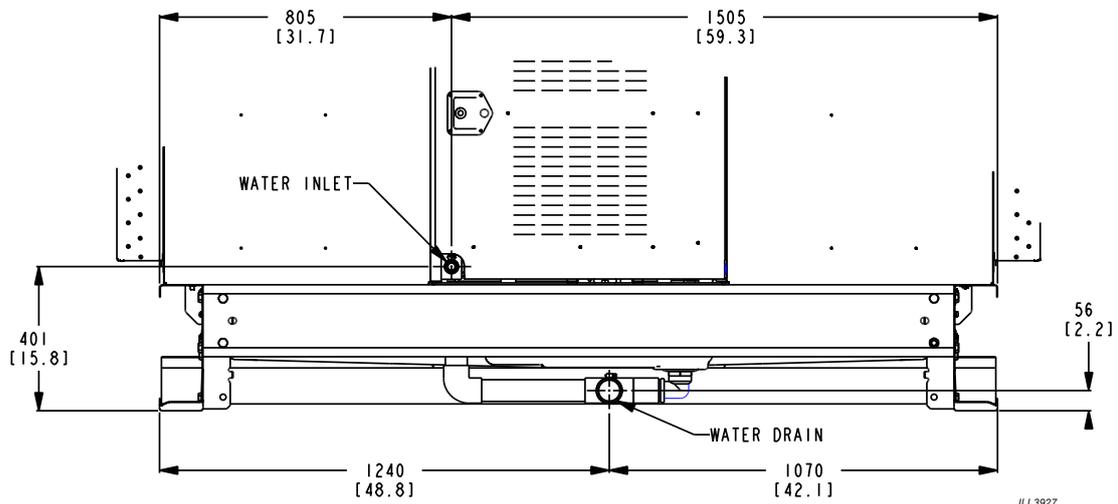
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EXHAUST PORTS DETAILS



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PLUMBING DETAILS



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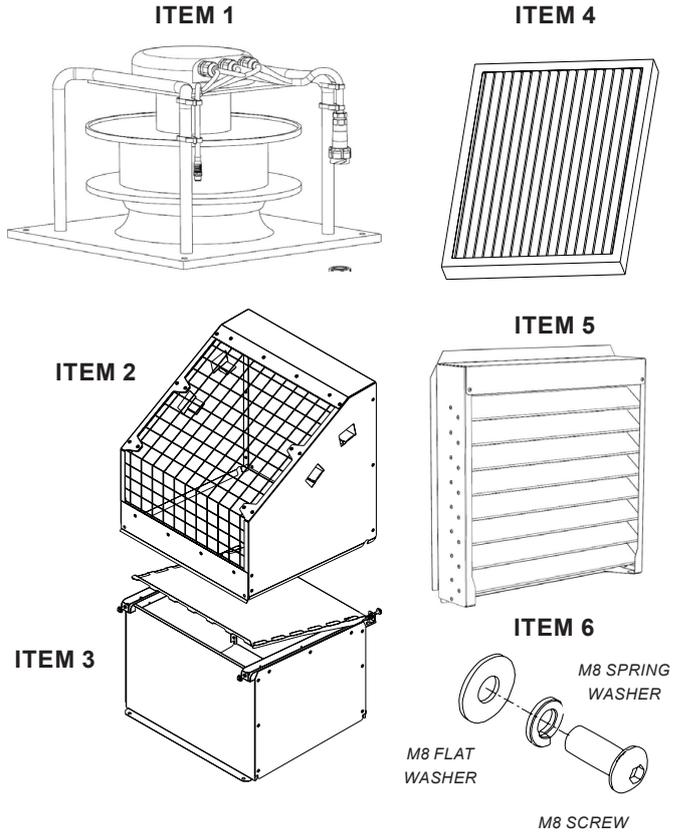
COOLER CONTENTS

INSTALLATION COMPONENTS

Due to transport height and width limitations, exhaust fan/motors, exhaust weatherseals, and air filter assemblies are shipped on a separate pallet for on-site installation.

For multi-cooler shipments, this pallet may be packed on a separate transport.

Item	Description	QTY
1	Exhaust Fan/Motors	4
2	Exhaust Weatherseal Top	4
3	Exhaust Weatherseal Bottom	4
4	Air Filters	16
5	Air Filter Housings	16
6	M8 Screw & Washers Assembly	48



OPTIONAL COMPONENTS

Item	Seeley Part	Description
1	121956	Multi-Magic® Wall Control Kit
2	121963	Multi-Magic® Room Air Sensor Kit
3	121932	Multi-Magic® Ambient Air Sensor Kit
4	121925	Multi-Magic® Duct Air Sensor Kit
5	121918	Multi-Magic® Pressure Sensor Kit



TECHNICAL DESCRIPTION

AIRFLOW

The cooler has 2 sets of fans,

2x Supply Air Fans

4x Exhaust Air Fans

All the fans work together to draw hot outside air through the 16 side-mounted air filters, through the dry channels of the 16 air-to-air indirect evaporative heat exchangers and into the middle of the cooler.

Inside the cooler, the air is split into an exhaust flow and a supply flow.

The 4 exhaust air fans draw the exhaust air through the wet channels of the 16 air-to-air indirect evaporative heat exchangers, and out through 4 the exhaust ports on top of the cooler back to atmosphere.

The 2 supply fans draw the supply air into the supply air plenum and, if fitted, over a secondary direct evaporative cooling stage, before entering the customer's ductwork..

HEAT EXCHANGERS

Indirect Evaporative Cooling (IEC)

The cooler has 16 air-to-air indirect evaporative heat exchangers, composed of alternating dry and wet channels separated by a membrane.

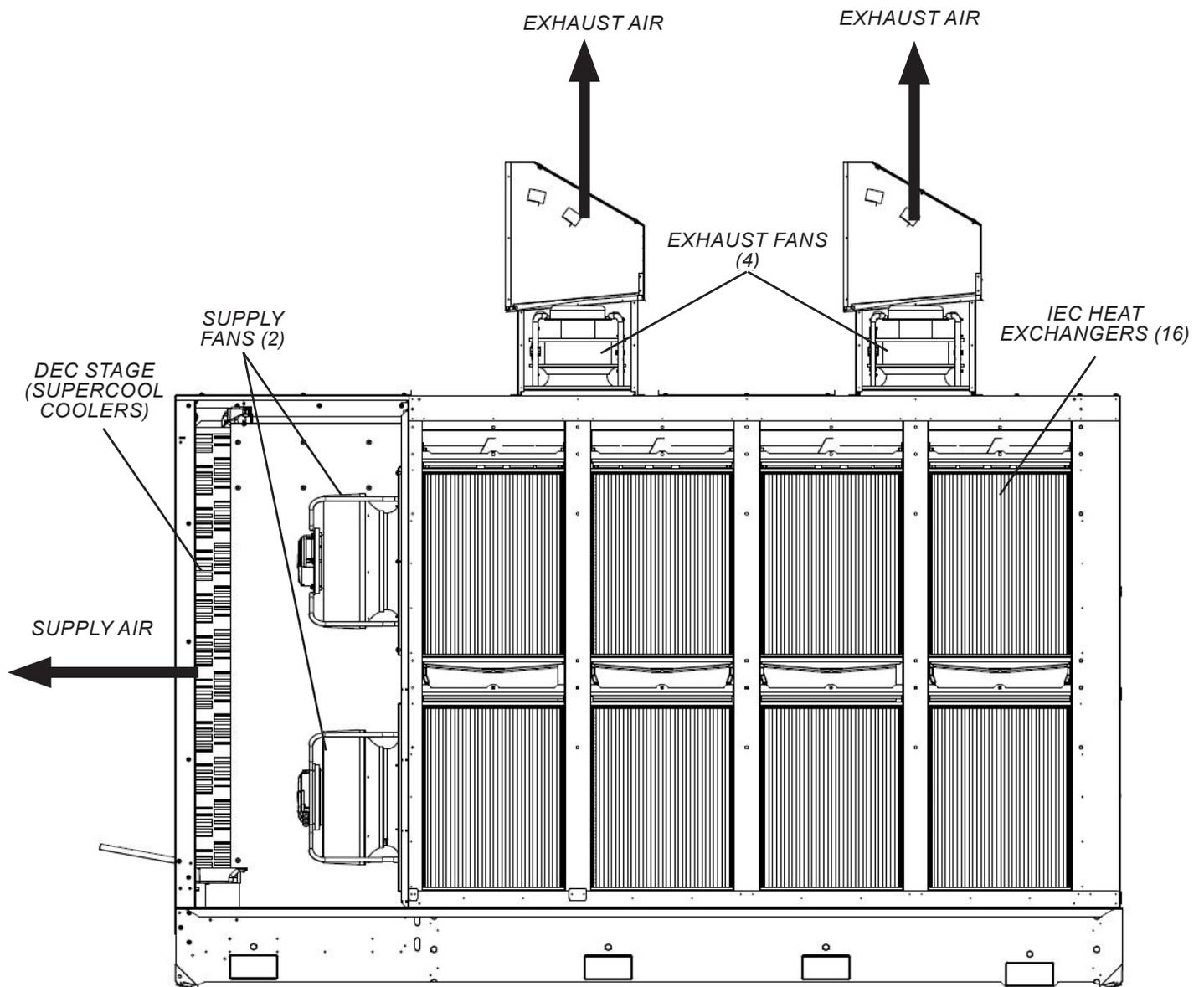
Through evaporation and conduction, heat is transferred from the air in the dry channels, across the membrane, and into the air in the wet channels.

The air in the dry channels is progressively cooled, but gains no additional moisture.

Direct Evaporative Cooling (DEC)

Supercool coolers are fitted with a secondary direct evaporative cooling stage.

The cooled air from the IEC stage passes over saturated Chillcel® media, where, through evaporation, it is cooled further with an increase in moisture content.

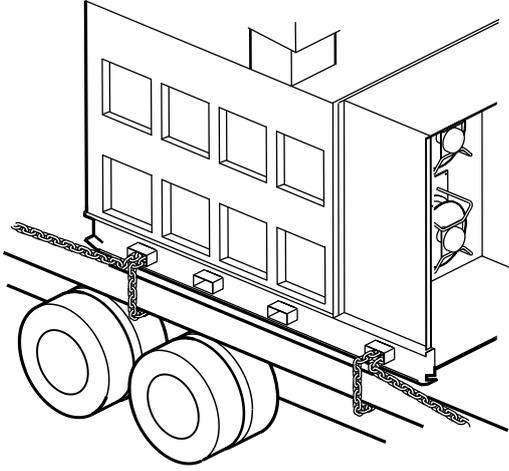


TRANSPORT

ROAD TRANSPORT

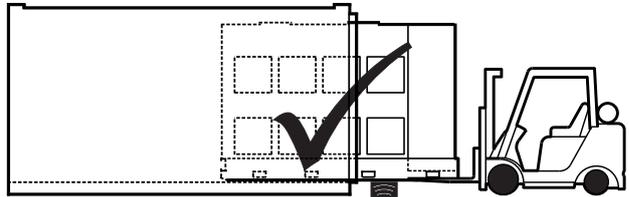
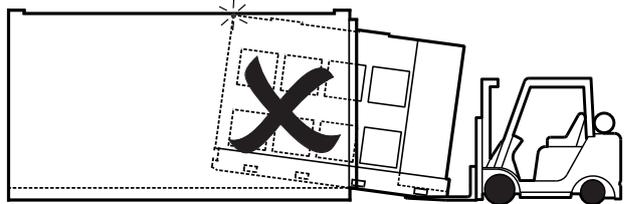
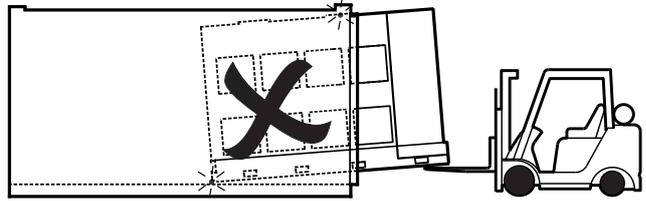
For road transport it is recommended to securely chain through the front and rear fork-lift pockets

Use a fully enclosed curtain-sided truck or a heavy duty tarpaulin to cover the open ports and protect the cooler surface against transport damage.



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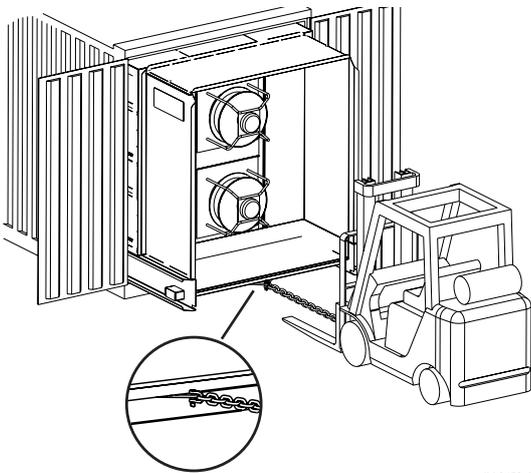
Ensure that the cooler is dragged out parallel to the container floor to ensure that damage to the top of the cooler does not occur.



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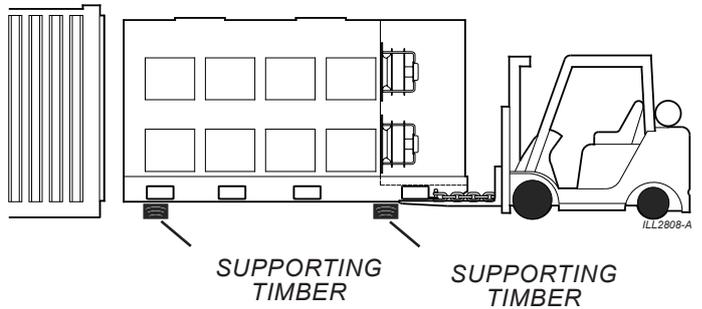
SHIPPING CONTAINER

Remove the cooler from a shipping container by attaching a chain to the integrated hook and pulling out with a fork-lift truck.

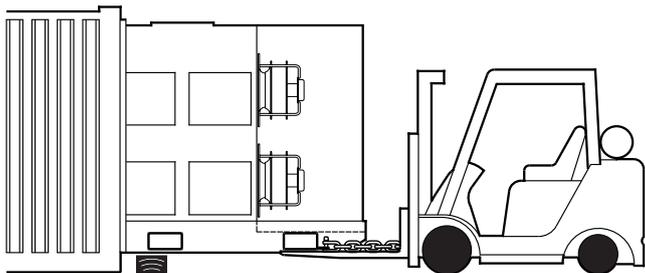


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As the cooler slides out, reposition the fork-lift truck and use supporting timbers to ensure that the cooler does not drop onto the ground.



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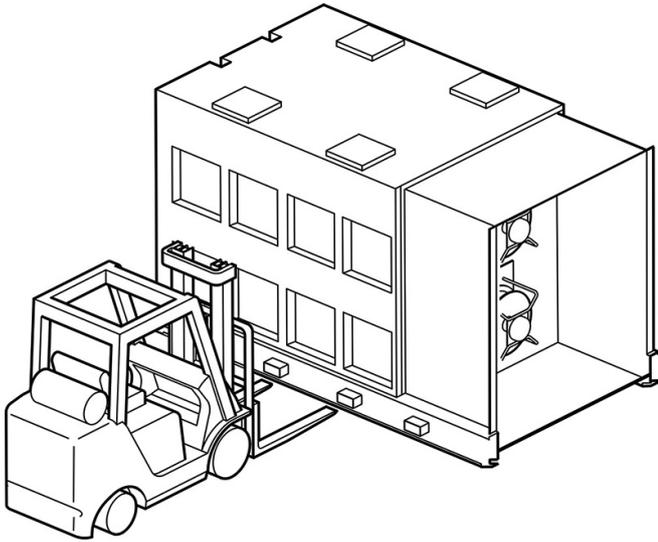
SUPPORTING
TIMBER

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TRANSPORT

MOVING THE COOLER

The cooler can be moved by fork-lift truck using the inner pair of fork-lift pockets.



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EQUIPMENT RECEIPT

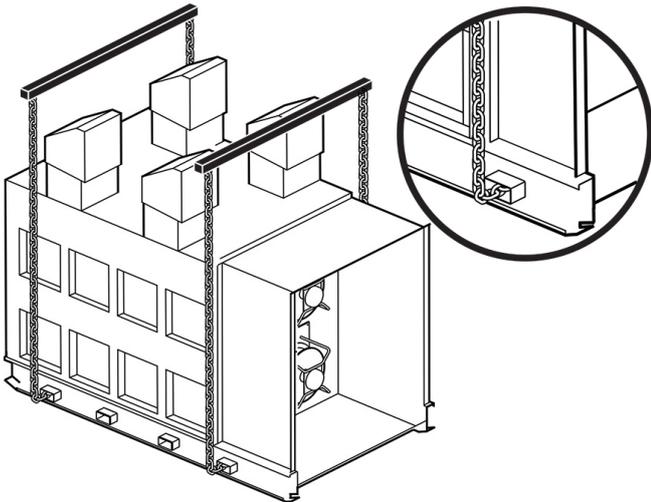
Inspect the cooler for any damage caused in transit. Any such damage must be immediately reported to the shipper of the goods.

The unit has been factory tested to check for correct operation of all components. If any part is missing or damaged, notify the supplier immediately.

LIFTING THE COOLER

The cooler may be lifted by crane with slings through the outer fork-lift pockets. It is recommended to use a spreader bar. Protect the upper edges of the cooler with a corner protector beneath the lifting straps to avoid any damage to the cabinet during the lift.

Do not attempt to lift using any cabinet features or by retrofitting lifting lugs. The cabinet may be damaged and/or lift safety compromised.



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INSTALLATION

COOLER LOCATION

Check the proposed cooler location to ensure that it is structurally capable of supporting the weight of the cooler, or provide an adequate alternate load bearing structure.

Model	Operating Weight
CW-80	2,700 kg / 4,650 lb
CW-80S	2,850 kg / 6,300 lb

Carefully consider neighbouring properties and noise levels when locating the cooler. If necessary, talk to the customer and the neighbour before carrying out the installation.

Always locate the cooler where it will receive a plentiful supply of fresh air and not in a recess where it may be starved for air or where the air is polluted. Provision must be made for access to electricity, water supplies and drains.

Air exiting the cooler exhaust is warm and heavily laden with moisture. Ensure the exhaust air will not cause corrosion or damage to other nearby items. Do not allow exhaust air to re-circulate into the air intake of the cooler.

Ensure that the location is a minimum of

- 3.0m (10') from a solid fuel heater flue
- 1.5m (5') from a gas flue
- 1.0m (3.5') away from adjacent solar panels or similar roof mounted fixtures
- 6.0m (20') from a sewer vent
- 3.0m (10') (preferably 5.0m (17')) away from any TV antenna or antenna cables. Make sure the cooler is not between the antenna and the transmission tower .

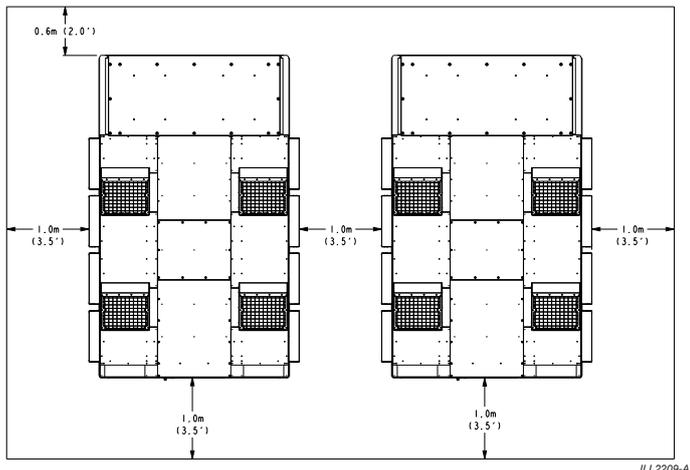
ACCESS FOR SERVICING AND MAINTENANCE

The cooler should be installed in a position that allows adequate access for installation, and future maintenance and servicing activities. This should comply with installation guidelines and any local, State and National regulations.

Consider the following for installation location:-

- Which has clear access to and around the cooler
- Which is clear of fixtures in line with below clearances
- Which is clear of fall edges (> 3.0m (10') away)
- Which is structurally capable of supporting the weight of the cooler and service technicians

Required clearances around the cooler for future maintenance and servicing are shown below.



Extra service or warranty charges may apply for the cost of any equipment or additional labour involved in accessing the cooler if these guidelines are not met.

Note! Do you need to discuss the installation of items like safety anchor points with the customer?

MOUNTING/SUPPORT

The cooler is supported by a pair parallel chassis rails, each with series of mounting holes for securing the cooler.

Dimensions of the chassis rails and locations of the mounting holes are shown in the cooler views at the beginning of this manual.

Where necessary, installers should use a sufficient number of suitably rated vibration isolation mounts to support the operating mass of the cooler.

SUPPLY AIR DUCT CONNECTIONS

Dimensions for the supply air duct interface are shown in the cooler views at the beginning of this manual.

All ducts must be independently supported and vibration absorbing flexible connections are recommended for all duct connections to the cooler.

All ducts must be suitably insulated to minimise temperature losses and all direction changes must utilise a generous radial turn with internal air directors to minimise turbulence and maximise efficiency.

IMPORTANT! Do not run the cooler against closed supply air ducts. Always ensure that dampers are fully open prior to starting the cooler fans. Running against closed air ducts will result in water being thrown out the cooler exhaust.

BUILDING EXHAUST RELIEF OPENINGS

Evaporative coolers operate on 100% fresh outside air and, to provide efficient cooling or ventilation, there must be sufficient exhaust relief openings to the outside of the building.

Where the design of the building prevents adequate exhaust relief openings, consideration should be given to the provision of mechanical extractions, such as an exhaust fan.

LOCATING INSIDE OF PLANT ROOMS

IMPORTANT! If the cooler is placed inside a plant room, installers must ensure that a sufficient volume of outside airflow is entering the plant room to prevent harmful emissions produced by other nearby appliances being drawn into the cooler and delivered into the building.

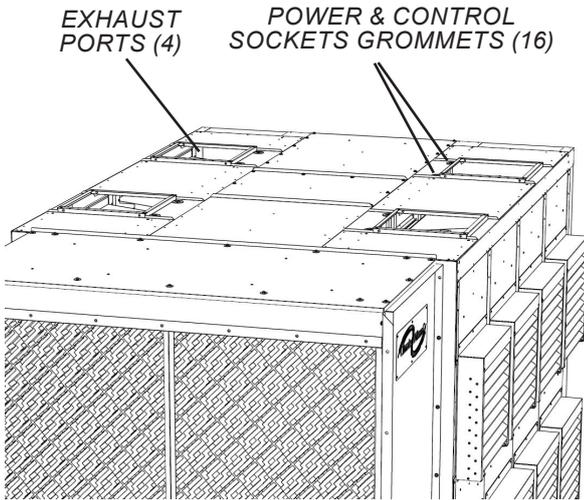
INSTALLATION

EXHAUST FANS

4 off Exhaust Fan/Motors are supplied loose. They are pre-wired with power and control plugs.

IMPORTANT! Risk of injury. Ensure power to the cooler is isolated before working with exhaust fans.

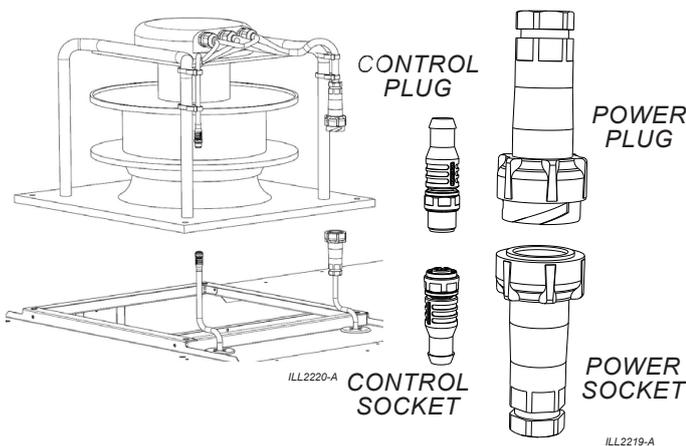
The power and control sockets are positioned inside the cooler during shipment to avoid damage. To access, remove the exhaust port protective covers, reach inside the cooler and push through the grommets on the cooler lid.



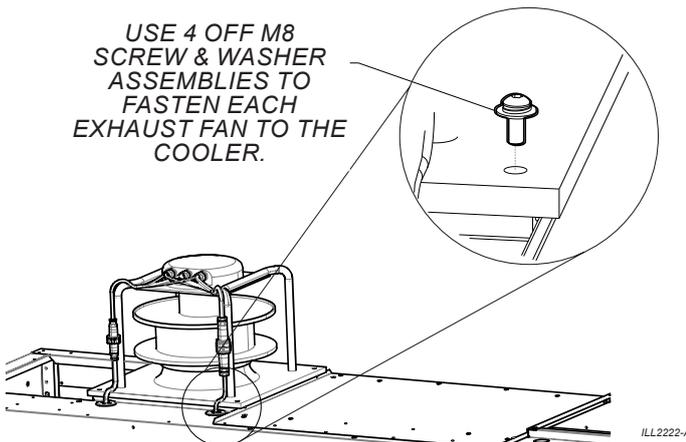
Lift the Exhaust Fans to the roof and orientate so that the plugs are aligned correctly with the sockets.

IMPORTANT! Each exhaust fan/motor weighs 23kg (50lb). Use appropriate mechanical aids and lifting technique to avoid injury.

Connect plugs to sockets, taking special care that the key on the plug aligns with the key slot on the socket.



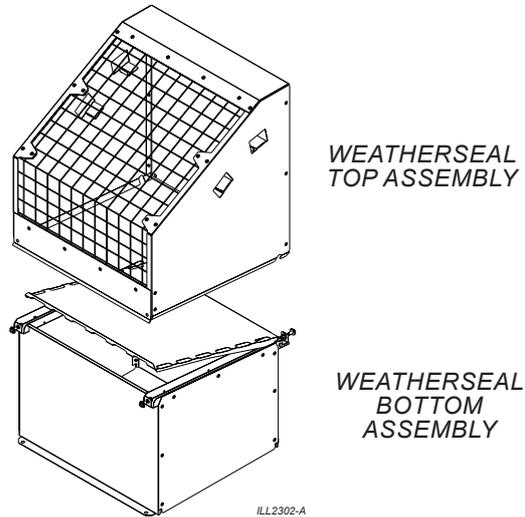
USE 4 OFF M8 SCREW & WASHER ASSEMBLIES TO FASTEN EACH EXHAUST FAN TO THE COOLER.



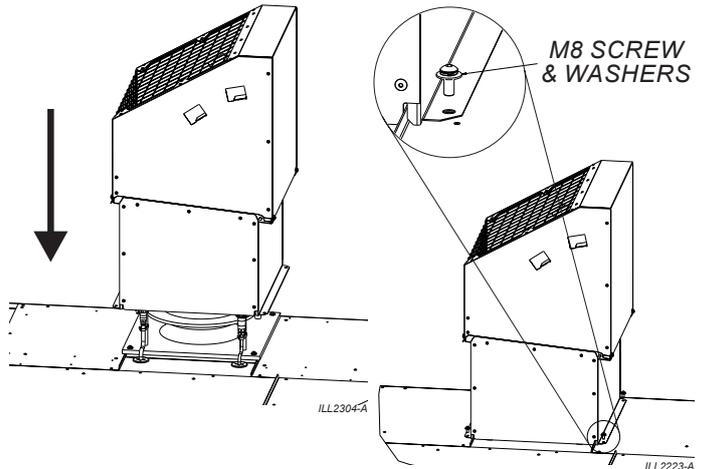
EXHAUST WEATHERSEALS

Weatherseals shroud the exhaust fans, acting as a safety device, preventing outside air from entering the cooler, and ensuring exhaust air is directed away from the inlets.

Use 4 off M8 Screw & Washer assemblies to fasten the "Weatherseal Top Assembly" to the "Weatherseal Bottom Assembly".



Position the complete weatherseal over exhaust fans and secure with 4 off M8 Screw & Washers assemblies



EXHAUST DUCT REQUIREMENTS

If required for indoor installations, the factory supplied weatherseals may be removed and the exhaust air ducted away from the cooler.

Dimensions for the four exhaust duct interfaces are shown in the cooler views at the beginning of this manual.

When designing the exhaust duct please note the following;

- Ensure the duct fully encompasses the exhaust fans.
- Future maintenance access to the exhaust fans will require removal of the exhaust duct. Ensure any exhaust duct is readily removable and/or lightweight.
- Where an installation requires longer duct runs, the increase in static load should not exceed 50 Pa (0.20 in wg).

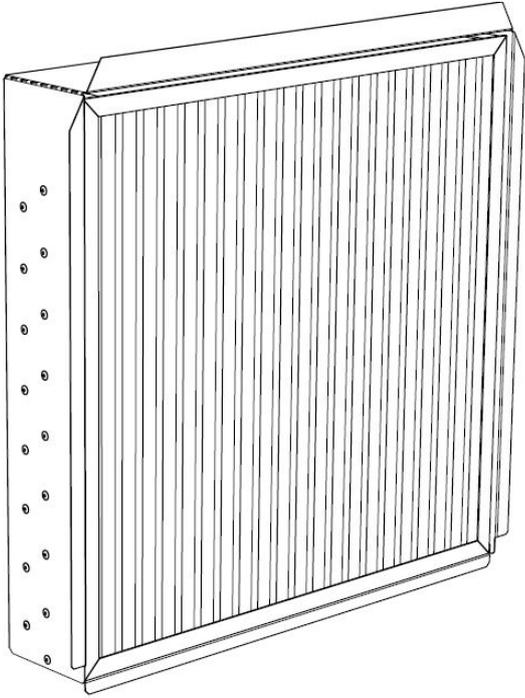
INSTALLATION

INTAKE AIR FILTERS

16 off Air Filters and Air Filter Housings are supplied loose.

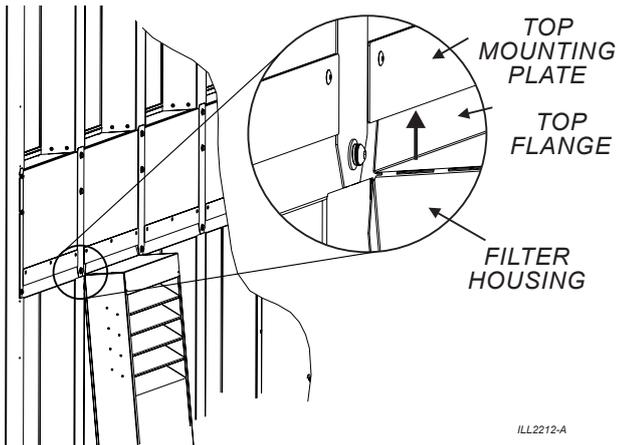
Remove the protective covers from the cooler's air intake ports.

Slip the Air Filter inside the Housing, take care to note the airflow direction arrow on the filter label.



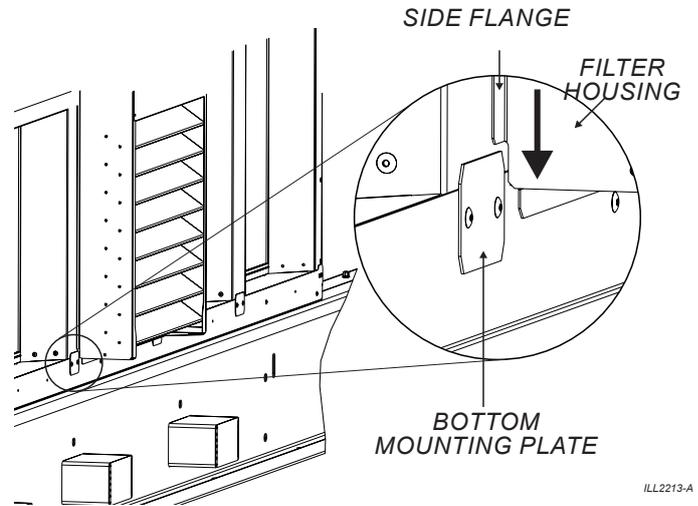
ILL2030-B

With the Air Filter sitting inside, position top flange of the Filter Housing behind the top mounting plate and push upwards.

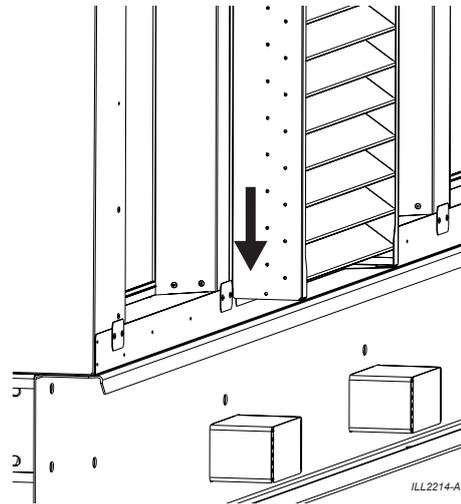


ILL2212-A

Push the bottom of the Filter Housing in against cooler and then push down so that the flanges on each side of the Filter Housing are engaged behind the bottom mounting plates on both sides.



ILL2213-A

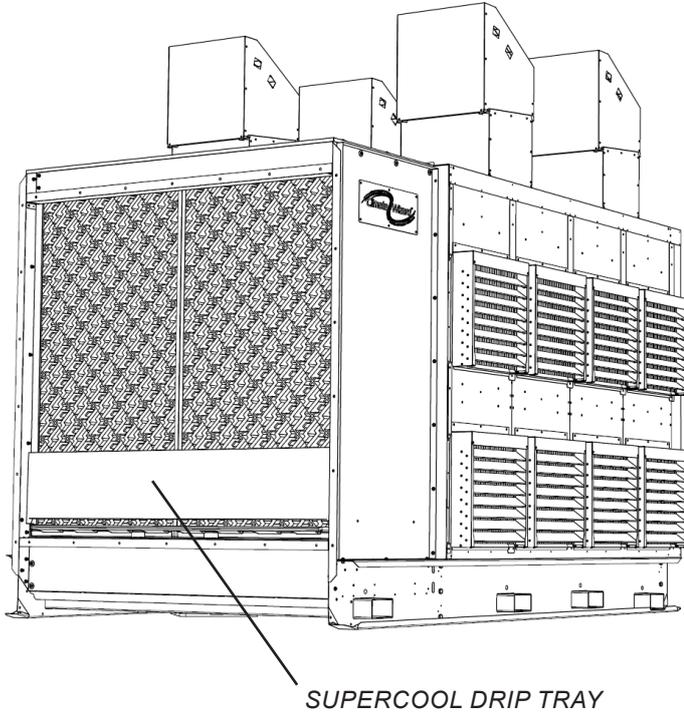


ILL2214-A

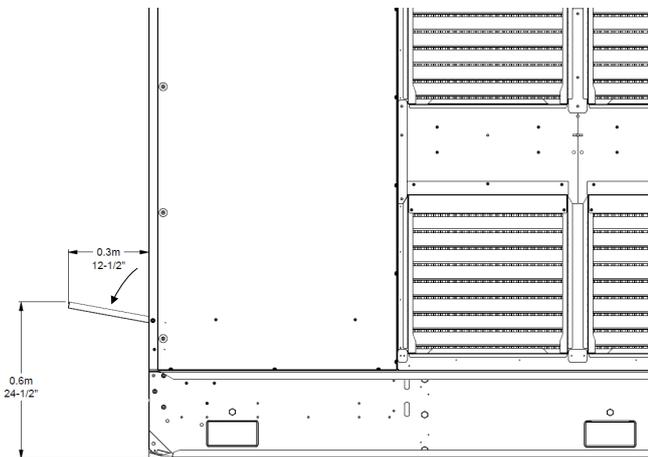
INSTALLATION

SUPERCOOL DRIP TRAY

Coolers fitted with a Direct Evaporative Cooling (DEC) stage have a drip tray on the supply outlet. The drip tray is locked in the up position for transport and needs to be lowered before the supply air duct is installed.



Unscrew the M8 bolts at either end of the drip tray. Lower into position and secure with the same M8 bolts



ELECTRICAL REQUIREMENTS

ELECTRICAL SUPPLY INSTALLATION

INSTALLATION OF THE COOLER MUST CONFORM TO LOCAL ELECTRICAL RULES, REGULATIONS AND STANDARDS.

It is a requirement of Seeley International that all coolers be wired with a dedicated circuit and circuit breaker/fuse at the distribution board.

A mains isolation switch, with all pole disconnection, shall be furnished by the contractor and installed adjacent to the cooler.

IMPORTANT! There are specific models for regional voltages and frequencies which are not interchangeable. Specifically, the fan motor(s), transformer(s) and pump(s) may be unique to the voltage/frequency of supply.

See the cooler rating label for the correct electrical data. Before connecting the device, make sure the power supply matches the cooler voltage and frequency.

Electrical Supply Specification: 3~, 380-480V, 50/60Hz, 10kA SCCR

No Neutral is required

IEC Current Ratings (380V-440V)

IEC Standard Fans	26A
Supercool Standard Fans	27A
IEC High Capacity Fans	29A
Supercool High Capacity Fans	30A

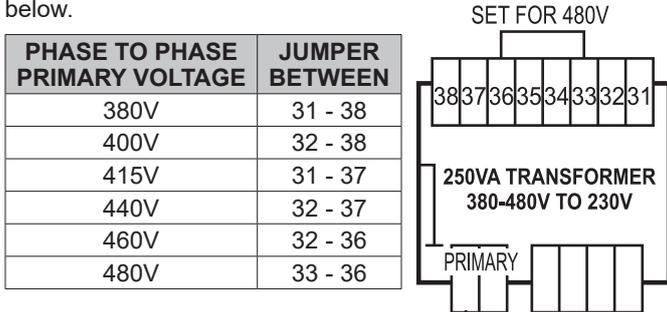
UL Current Ratings (440V-480V)

IEC Standard Fans	FLA 23A, MCA 24A, MOPD 25A
Supercool Standard Fans	FLA 24A, MCA 25A, MOPD 25A
IEC High Capacity Fans	FLA 25A, MCA 27A, MOPD 30A
Supercool High Capacity Fans	FLA 26A, MCA 28A, MOPD 30A

Mains power terminals are provided inside the electrical cabinet with gland plate provided for cable entry.

TRANSFORMER TAPPINGS

The cooler has a pair of transformers (TF1 & TF2) to power the cooler components. By default the input voltage jumper is set for either 415V or 460V. If the power supply has a different phase-to-phase voltage, reposition the jumper as per the table below.

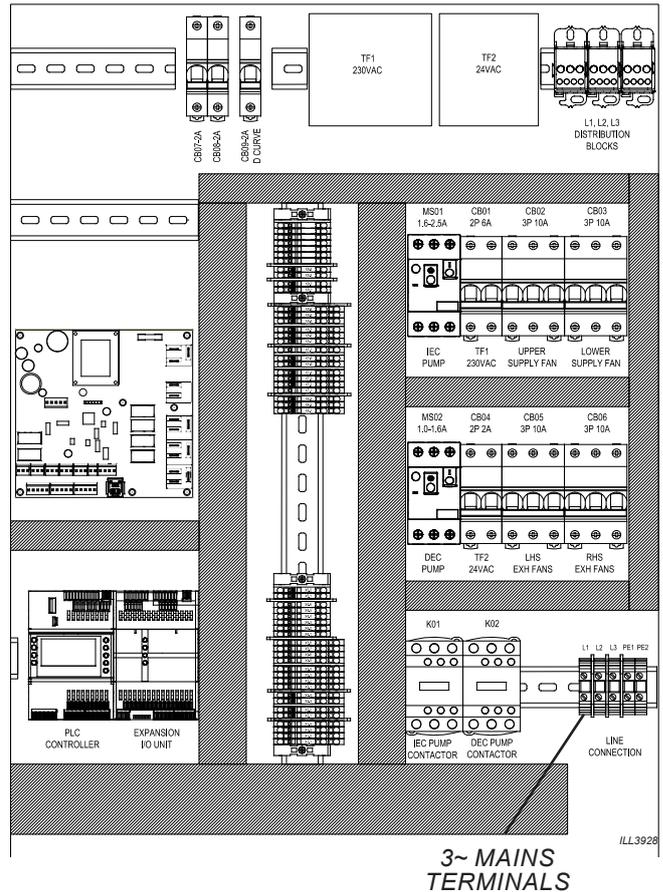


RESIDUAL CURRENT CIRCUIT BREAKER

The cooler utilises fan motors with built-in variable speed drives (VSD). If local electrical standards require the use of a residual current circuit breaker (RCCB), only AC/DC-sensitive residual current devices (type B) are permissible. If incorrectly selected and/or sized, pulsed charging currents from the capacitors in the integrated EMC filter can lead to the instant tripping of RCCB when the cooler power supply is switched on.

24VAC POWER SUPPLY

The cooler is provided with a 24VAC transformer for use with internal components and optional sensor accessories. The maximum power available for external components is 30VA.



HIGH LEAKAGE CURRENT

IMPORTANT! High leakage current. Earth connection essential before connecting supply.

The cooler utilises fan motors with built in inverter drives. To comply with EMC regulations, these drives adopt EMC filters that connect to the motor earth terminals. Across a total of 6 fan motors, the normal filter leakage current to earth may accumulate to a total leakage current in excess of 10mA. For asymmetrical power systems or if a phase fails, the leakage current can increase to a multiple of the nominal value.

To comply with regulations and to prevent electric shock, this leakage current must be properly addressed.

In particular, both earth terminals (PE1 and PE2) at the mains power point of connection must be properly connected and earthed. Power must not be applied until this is correctly completed.

Warning labels have been installed inside the electrical enclosure door and adjacent to the incoming power cables.

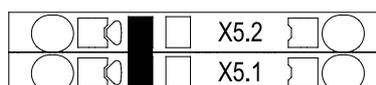
FIRE TERMINALS

A pair of terminals labelled "FIRE" are provided for integration with a building fire management system.

These terminals provide power to the cooler controls and are supplied with a bridge.

To use with a building management system, remove the bridge and connect the terminals through a NORMALLY CLOSED relay which opens in a fire event.

Interrupting power to the PLC will immediately stop all cooler components, including fans.



WATER REQUIREMENTS

WATER SUPPLY INSTALLATION

The cooler requires a permanent water supply to be connected. A built-in Inlet Solenoid Valve, controlled by the water management system, allows water into the cooler when required.

INSTALLATION OF THE WATER SUPPLY MUST CONFORM TO LOCAL PLUMBING RULES, REGULATIONS AND STANDARDS.

The following specifications for water supply are required:

Water Connections:

½" BSP. Use flexible hose for the final connection to assist with future maintenance.

Water Supply:

100kPa (15psi) - 1000 kPa (145psi)
30L/min (8 gal/min) MINIMUM
45L/min (12 gal/min) RECOMMENDED

Water Supply Temperature:

40°C (105°F) MAXIMUM

Water Supply Salinity:

100 to 1150µS/cm

WATER SUPPLY PRESSURE REGULATION

The Installer must provide a pressure regulator in the water supply line adjacent to the cooler to regulate water supply pressures between 100kPa (15 PSI) and 1000kPa (145 PSI).

Important! Water pressures which are lower than 100kPa (15 PSI) will prevent the inlet solenoid valve from opening.

Important! Water pressures which are higher than 1600 kPa (230 PSI) and/or water temperatures which are higher than 60°C (140°F) risk inlet solenoid valve failure.

Water pipes installed on the outside of a building, or any other exposed location, shall have adequate insulation to protect against freezing in the winter and solar radiation heating in the summer.

If a non-return valve is installed in the water supply line, it is recommended that a suitable pressure relief valve is also installed between the cooler and the non-return valve to limit the pressure rise associated with the heating effects of ambient temperature and solar radiation.

WATER SUPPLY ISOLATION

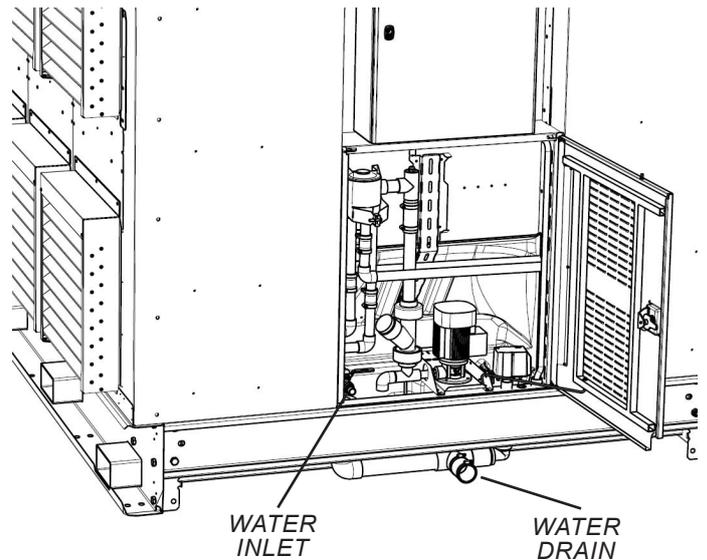
The cooler is provided with a manual 1/4 turn ball type shut off valve. This allows the water supply to be isolated whenever work needs to be done on the cooler.

In areas where temperatures can cause water supply pipes to freeze, a drain down facility should be provided during the installation. This drain down facility must be activated prior to freezing conditions to avoid possible damage to the cooler components.

WATER HAMMER

Not all installation pipe work is the same, and some may require additional prevention against water hammer.

If water hammer is a problem, it is the responsibility of the Installer to fit an appropriate water hammer arresting device external to the cooler.



WATER SUPPLY FILTRATION

The cooler is provided with an inlet water filter in the water supply line to prevent any debris from entering and damaging cooler components.

Important! Flush the water pipe to remove any contaminants (swarf, filings or dirt) before final fitting. Contaminants can lodge in the inlet solenoid valve, preventing it from functioning correctly. External filtration should be a minimum of 500 microns.

The cooler's water management system is designed to use water that is suitable to be classified as 'potable' and fit for human consumption. If alternative water (including rain water) is to be used that contains unusually high or low levels of salinity, hardness, acidity or chemical contaminants, then additional filtration or treatment systems should be employed to render the water 'potable'.

WATER DRAIN INSTALLATION

The cooler requires a permanent water drain to be connected. A built-in Drain Valve, controlled by the water management system, releases water from the cooler when required.

INSTALLATION OF THE WATER DRAIN MUST CONFORM TO LOCAL PLUMBING RULES, REGULATIONS AND STANDARDS.

Drain Connections:

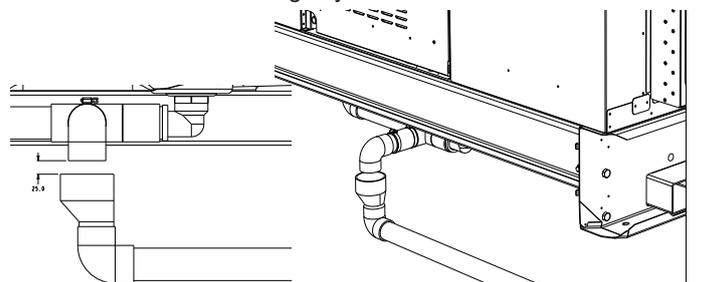
50mm (2") Flexible Coupling

Drain Rate:

40 L/min (10.5 gal/min)

Important! Water drained from the drain valve is high in salinity and must be carried away to a suitable discharge point on the building or property. Never drain the water directly onto the roof

Important! Drainage systems with long pipe runs, multiple entry points, and/or incorporating traps shall use a tundish or similar device to create a 25mm (1") air-gap between the bottom of the drain valve and the drainage system.



COOLER CONTROL COMPONENTS

FAN SPEED MANAGEMENT SYSTEM

The cooler contains two sets of fans, with each fan driven by a electronically commutated DC motor with integrated variable speed drives (VSD) that allows for 0-10Vdc speed control.

Supply Fan Speed

The supply fan speed is controlled by the inputs from the Primary Control Method (e.g. Multi-Magic® Wall Controller). Depending upon the control type, speed control is either continuously variable or in 10 discrete speed steps (Speed 1-10).

If, when commanded to start, the fan start delay option is enabled, the supply fans will remain off until the delay timer has expired.

Upon starting, the supply fans will initially run at a fixed slow speed for 30 seconds before increasing to the requested speed.

If pre-wet is enabled, the supply fans will remain at the fixed slow speed until the pre-wet cycle is complete.

Exhaust Fan Speed

The exhaust fan speed is automatically calculated by the fan management system.

When the Indirect or Direct cooling stages are running, the exhaust fans track the speed of the supply fans via a fixed formula.

In Vent mode and during the pre-wet cycle the exhaust fans run at a fixed speed.

WATER MANAGEMENT SYSTEM

The cooler contains multiple parts to supply, distribute and manage the water needed for the heat exchangers.

Water Inlet Solenoid Valve

The inlet solenoid valve allows water into the water reservoir. It is open during the following phases.

- Initial Tank Fill
Trigger: Entering IEC or DEC mode.
- IEC Tank Fill
Trigger: Indirect Watering Cycle = TANK FILL.
- DEC Only Tank Fill
Trigger: Low Probe = WET.

Once open, the inlet solenoid valve will remain open until the water high probe has detected water for at least 30 seconds.

If the water drain valve is open, the inlet solenoid valve will remain closed.

Indirect Pump Control (IEC Watering Cycle)

The indirect pump moves water from the reservoir to the 16 indirect heat exchangers. The heat exchangers are split into 4 groups of 4 and an indexing valve, which automatically rotates each time the indirect pump starts, is used to sequentially water each group in turn.

The indirect heat exchangers do not require continuous watering and the pump runs on the following cycle

- Tank Level OK - Water filled to high probe and waiting for next IEC pump cycle to start.
- Indirect Pump Running (60 seconds).
- Core Drain - IEC pump stopped and excess water is draining back to the reservoir (15 seconds)
- Tank Fill - IEC pump stopped and inlet solenoid valve open and re-filling to high probe (60 seconds)
- Salinity Update - water has reached high probe (15 seconds)

Total IEC pump on time = 60 seconds

Total IEC pump off time = 90 seconds

Direct Pump Control (Supercool coolers only)

The direct pump moves water from the reservoir to the Chillcel® media.

To avoid water pull off from dry media, the direct pump initially pulses ON & OFF, with the ON phase gradually increasing in length. After approximately 45 minutes, the direct pump will run continuously.

Excess water from the Chillcel® media drains back to the reservoir.

Water Salinity Control

As water evaporates from the heat exchangers, the salinity of the remaining water naturally increases.

The water management system uses the 3-pin water probe to measure water conductivity as a proxy for salinity. The probe can sense conductivity down to 13 µS (about 7ppm) .

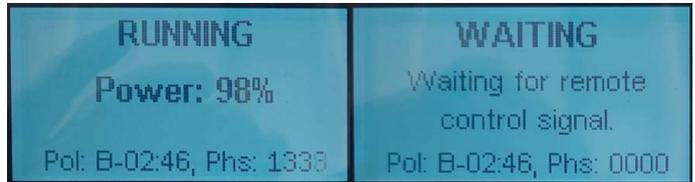
Water conductivity is updated every time water reaches the high probe and, when it exceeds the upper set point, a salinity drain cycle will start.

Chlorinator Control

The chlorinator is composed of specially treated plates. When energised and submerged in water, electrical current flows between the plates generating chlorine which is known to kill bacteria in water supplies.

The chlorinator is active when the cooler is in IEC mode, AND the water level is above the bottom probe AND the water conductivity is >1500 µS/cm. When active the chlorinator power supply will display "RUNNING".

When the running conditions have not been met, the chlorinator power supply will display "WAITING FOR REMOTE SIGNAL".



If the water conductivity remains <1500µS/cm for 24 hours, a clean tank drain cycle will start.

Water Tank (Reservoir) Drain Valve

The drain valve will automatically open when power is first applied to the cooler. It will close again when IEC or DEC mode is enabled.

During a salinity drain cycle, the drain valve opens until the water level falls below the low probe, then the drain valve closes immediately, and inlet solenoid valve opens to refill the reservoir with fresh water.

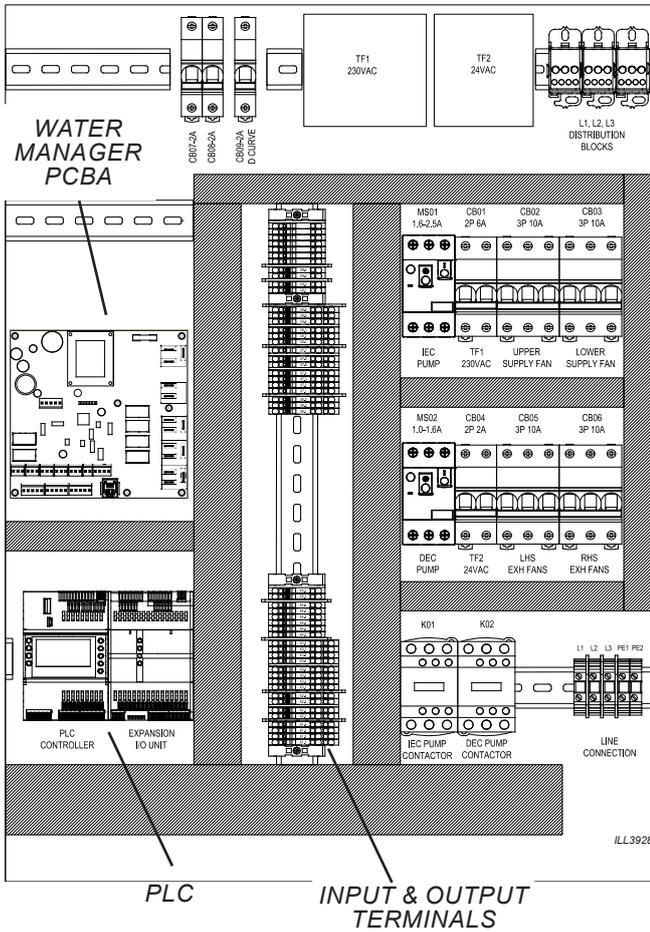
During a clean water drain cycle, the drain valve remains open for at least 10 minutes after which the inlet solenoid valve opens to refill the reservoir with fresh water.

The drain valve will open if it has been 3 days since IEC or DEC mode was last run.

COOLER CONTROL COMPONENTS

CONTROL COMPONENTS

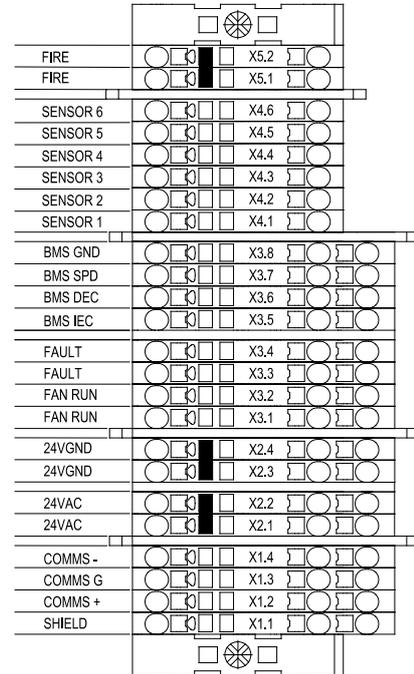
Cooler logic and controls are handled by a PLC in conjunction with a Water Manager PCBA, both located in the controls enclosure.



INPUT AND OUTPUT TERMINALS

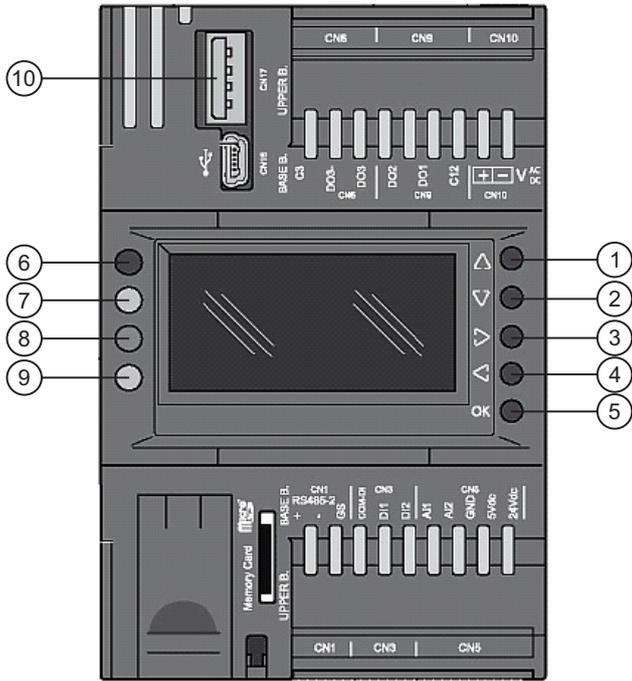
A series of input and output terminals are located in the middle of the controls enclosure.

See MULTI-MAGIC CONTROLS for terminal functions.



MULTI-MAGIC CONTROLS

MULTI-MAGIC PLC



ILL3622-A

Item	Description	Item	Description
1	UP – moves cursor up to next variable <u>or</u> increase value in edit mode	6	Green LED – Power Status
2	DOWN – moves cursor down to next variable <u>or</u> decrease value in edit mode	7	Red LED – Fault Status. Number of flashes indicates fault code
3	RIGHT – opens the next page	8	Yellow LED
4	LEFT – opens the previous page	9	Green LED – Flashes if wall control/MODBUS primary is connected
5	OK (ENTER) – select/edit value	10	USB Type A for USB memory stick

For all PLC screens:

- Use the navigation UP/DOWN buttons to scroll through the options
- Push the OK button to edit the option.
- Use the UP/DOWN buttons to change the value of the option.
- Push the OK button again to confirm the selection and exit edit mode.

Use the navigation LEFT/RIGHT buttons to switch between the “CONTROL”, “MONITOR”, “SENSORS” and “HISTORY” screens.

To return to the previous menu screen long press the LEFT button

CONTROL SCREEN

This screen allows the user to select the cooler's primary input control method, including controlling the cooler manually from the PLC via Local Mode.



ILL3624

Item	Description	Item	Description
1	<u>Primary Input Control Method:</u> LOCAL WALL = Multi-Magic Wall Controller (RS-485) BMS = Low Voltage BMS Modbus (RS-485) BACnet (MS/TP or IP)	4	PLC Software Revision
2	<u>Cool Mode</u> Vent = Fan only. Indirect = Fan & Indirect Evaporative Cooling Direct = Fan & Direct Evaporative Cooling* Supercool = Fan & Indirect & Direct Evaporative Cooling*	5	Message Bar. Shows current cooler status.
3	<u>Fan Speed</u> If Control Method = Local; Sets Fan Speed 0-10 Otherwise display 0-100% (Modbus) or display 0-10 (Wall Controller / BMS / BACnet)	6	<u>Fault</u> . Displays if a fault condition is active.

*NOTE. Direct Cool Mode and Supercool Mode are available for Supercool enabled coolers only.

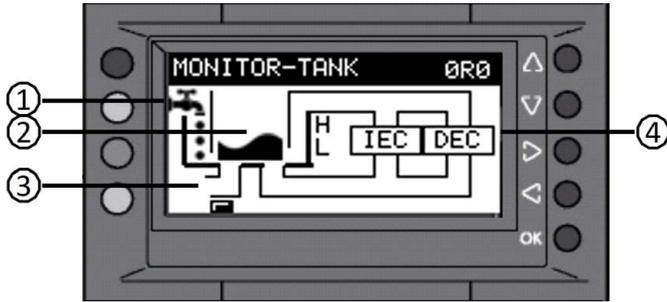
IMPORTANT! The cooler can only accept control inputs from the primary control method selected on the CONTROLS screen, however control outputs are available to be read from alternative communication methods.

For example, when Wall Controller is selected (RS-485), the cooler will only accept inputs (e.g. Fan Speed) from a Multi-Magic® Wall Controller, whereas outputs (e.g. Fault Status) can be read from the low voltage terminals (BMS).

MULTI-MAGIC CONTROLS

MONITOR SCREENS

These screens allows the user to see the status of the cooler components.



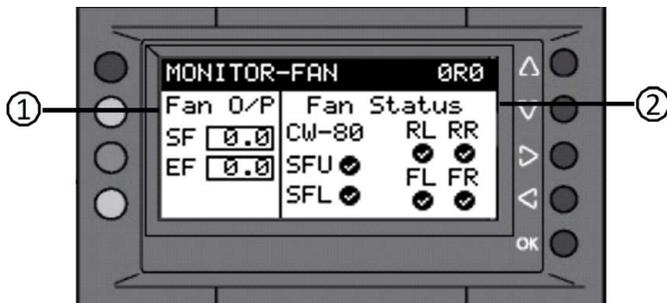
ILL3623

Item	Description	Item	Description
1	Displays status of the Inlet Water Solenoid Valve. Image shows running water into tank when valve is open.	3	Displays status of the Drain Valve. Image shows water emptying from tank when valve is open.
2	Displays the tank water level. Image empty when water not detected at low probe. Image half full when water detected at low probe only. Image full when water detected at both low and high probes.	4	Displays the status of the pumps. Image shows flowing water when the Indirect Pump (IEC) and/or Direct Pump (DEC) is running.



ILL3871

Item	Description	Item	Description
1	Displays water salinity level (µS/cm) measured by 3 pin probe.	3	Water Manager PCBA Software Revision
2	Displays status of the Chlorinator. ON/OFF OK <input checked="" type="checkbox"/> FAULT <input type="checkbox"/>		

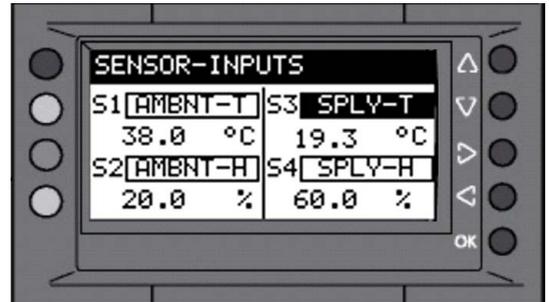


ILL3932

Item	Description	Item	Description
1	Displays the status of the fan motors. 0-10Vdc analogue output from the PLC to the supply fan (SF) and exhaust fan (EF) motors.	2	SFU: Supply Fan Upper SFL: Supply Fan Lower RL: Exhaust Fan Rear Left RR: Exhaust Fan Rear Right FL: Exhaust Fan Front Left FR: Exhaust Fan Front Right OK <input checked="" type="checkbox"/> FAULT <input type="checkbox"/>

SENSOR SCREENS

These screens allow the user to configure up to six 0-10Vdc input channels, labelled S1 to S6, for use with optional sensor accessories.



ILL3710-C

Tag	Description
Ambient Air Sensor	
AMBNT-T	Temperature, 0-10V, -40...+70C or -40...+158F
AMBNT-H	Relative Humidity, 0-10V, 0...100% rh
Room Air Sensor	
ROOM-T	Temperature, 0-10V, 0...+50C or +32...+122F
ROOM-H	Relative Humidity, 0-10V, 0...100% rh
Supply Air Duct Sensor	
SPLY-T	Temperature, 0-10V, 0...+50C or +32...+122F
SPLY-H	Relative Humidity, 0-10V, 0...100% rh
Differential Air Pressure Sensor	
PRESSURE	Pressure, 0-10V, 0...+500Pa or 0...+2.00"wg

Temperature and Relative Humidity sensors require two input channels. When configuring the first channel for Temperature, the second channel is automatically configured for Relative Humidity.

Pressure sensors require only one input channel.

Installing sensor accessories does not automatically activate additional sensor functionality. Customers require a control method (e.g. Multi-Magic® Wall Controller or 3rd Party Building Management System) to use the measured values as required.

See separate Installation Instructions for each type of sensor for example functions.

HISTORY SCREENS

These screens allow the user to view time stamped records of the coolers fault code history and water drain history. Each history can be reset by selecting the CLEAR button.

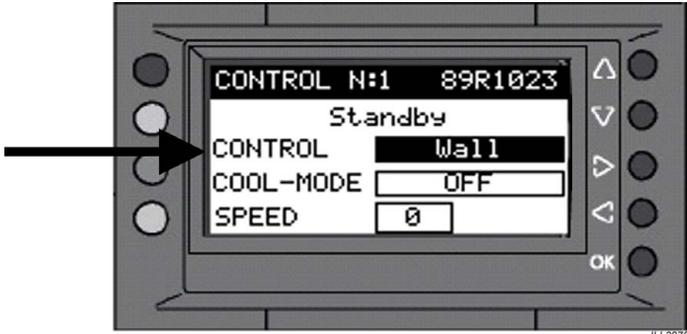


ILL3930

MULTI-MAGIC CONTROLS

CONTROL METHOD OPTION 1 (WALL)

MULTI-MAGIC WALL CONTROLLER (WALL)



The Multi-Magic® Wall Controller, (supplied separately) can control up to a maximum of 15 Multi-Magic® coolers acting as a Primary Controller over a Modbus RS-485 network.

It incorporates sensors to automatically regulate local zone temperature and relative humidity.

Ensure "WALL" is selected on the CONTROL screen.



Refer to the RS-485 wiring rules section in this manual for communication cable installation instructions and refer to installation literature provided with the Multi-Magic® Wall Controller for additional setup instructions.

SETTING DEVICE NODE ADDRESS (WALL)

When using the Multi-Magic® Wall Controller, each cooler on the RS-485 network requires a unique Node Address.



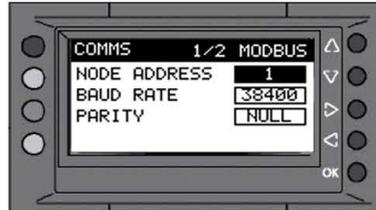
Push and hold the RIGHT button until the password screen is displayed.



Use the LEFT/RIGHT and UP/DOWN buttons to enter password "7378" and push OK to display the SETUP screen.



Use the UP/DOWN buttons to select COMMUNICATION and push OK.

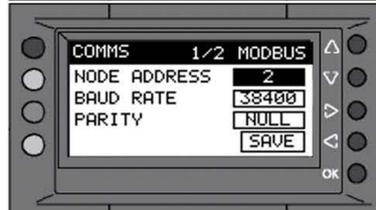


Use the UP/DOWN buttons to select NODE ADDRESS.

Push OK to activate the field.

Use the UP/DOWN buttons to set a unique value from 1 to 15 for each cooler and push OK.

Note:
Baud Rate must be 38400
Parity must be NULL

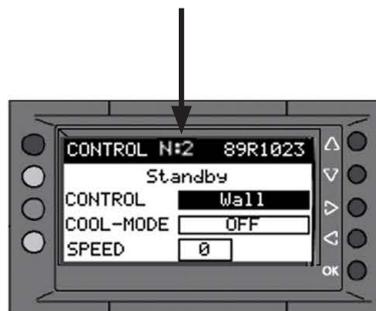


Use the UP/DOWN buttons to select SAVE.

Push OK to activate the field.



AFTER CHANGING NODE ADDRESS, CYCLE POWER TO COOLER TO SAVE CHANGE.

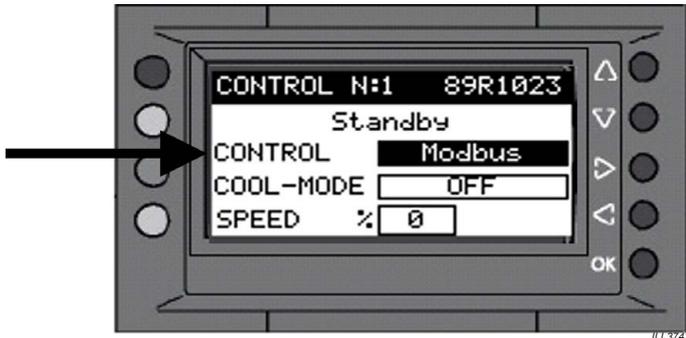


Once set, the cooler NODE ADDRESS will appear on the CONTROLS page.

MULTI-MAGIC CONTROLS

CONTROL METHOD OPTION 2 (MODBUS)

3rd PARTY MODBUS RS-485 PRIMARY CONTROL



The basic functions of cooler can be controlled via a 3rd Party Modbus RS-485 Primary Controller.

Ensure "MODBUS" is selected on the CONTROL screen.

Modbus control registers are available for.

- Vent Mode
- IEC Cool Mode
- DEC Cool Mode*
- Fan Speed (0-100%)
- Fault Code Reset
- Manual Drain

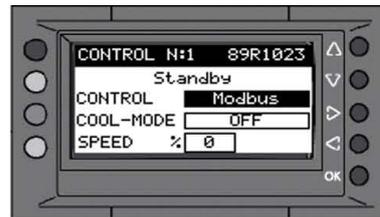
***Note:** DEC Cool Mode only operates on Supercool coolers

Additional read only registers are available for monitoring the status of the connected coolers. See Appendix C for the full register list.

Refer to the RS-485 wiring rules section in this manual for communication cable installation instructions

COMMUNICATION SETUP (MODBUS)

All secondary devices (coolers) on the Modbus RS-485 network requires a unique Node Address and communication setting which match the 3rd Party Primary Controller.



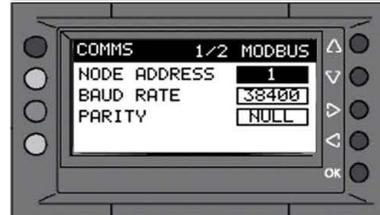
Push and hold the RIGHT button until the password screen is displayed.



Use the LEFT/RIGHT and UP/DOWN buttons to enter password "7378" and push OK to display the SETUP screen.



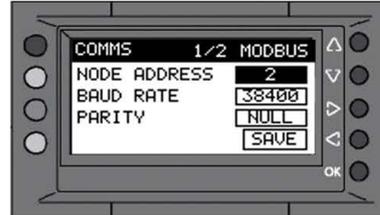
Use the UP/DOWN buttons to select COMMUNICATION and push OK.



Use the UP/DOWN buttons to and push OK to activate the available fields.

Set a unique NODE ADDRESS from 1 to 99 for each cooler.

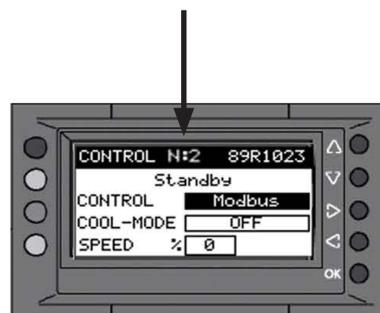
Set BAUD RATE and PARITY values to match the Primary Modbus Controller.



Once finished select SAVE.

Push OK

AFTER CHANGING COMMUNICATION SETTINGS, CYCLE POWER TO COOLER TO SAVE CHANGE.



Once set, the cooler NODE ADDRESS will appear on the CONTROLS page.

MULTI-MAGIC CONTROLS

CONTROL METHOD OPTION 3 (BACNET)

3rd PARTY BACnet MS/TP or BACnet IP PRIMARY CONTROL



The basic functions of cooler can be controlled via BACnet using either BACnet MS/TP or BACnet IP protocols.

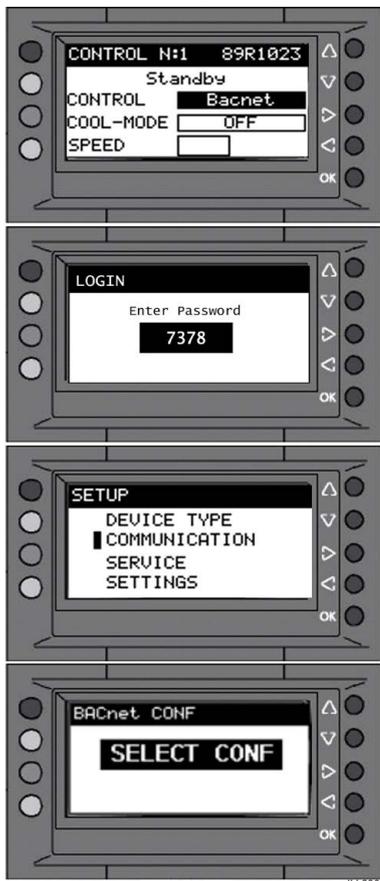
Ensure "BACNET" is selected on the CONTROL screen.

BACnet control objects are available for.

- Cooler ON/OFF
- Vent Mode
- IEC Cool Mode
- DEC Cool Mode (Supercool only)
- Fan Speed (0-10)
- Fault Code Reset
- Manual Drain

Additional monitoring objects are available for the status of the connected coolers. See Appendix D for the full object list.

BACNET PROTOCOL SELECTION



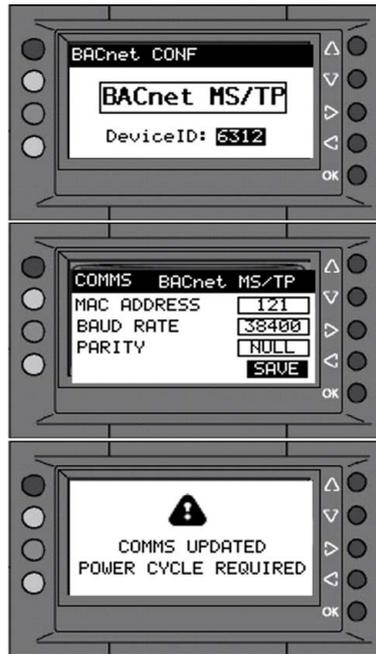
Push and hold the RIGHT button until the password screen is displayed.

Use the LEFT/RIGHT and UP/DOWN buttons to enter password "7378" and push OK to display the SETUP screen.

Use the UP/DOWN buttons to select COMMUNICATION and push OK.

Use the LEFT/RIGHT and UP/DOWN buttons to select either BACnet MS/TP or BACnet IP

BACNET MS/TP COMMUNICATION SETUP



With BACnet MS/TP selected.

Use the UP/DOWN buttons to set a unique DEVICE ID (Instance) from 1 to 9999 for each cooler.

Press RIGHT button.

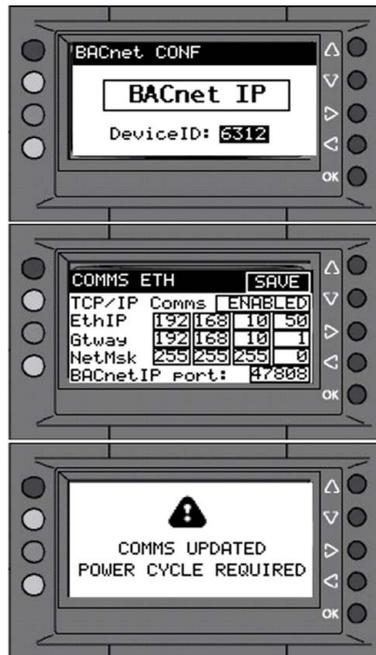
Set unique MAC ADDRESS (1 to 127). Set BAUD RATE and PARITY values to match the BACnet Controller.

Once finished, select SAVE.

Push OK

AFTER CHANGING COMMUNICATION SETTINGS, CYCLE POWER TO COOLER TO SAVE CHANGE.

BACNET IP COMMUNICATION SETUP



With BACnet IP selected

Use the UP/DOWN buttons to set a unique DEVICE ID (Instance) from 1 to 9999 for each cooler.

Press RIGHT button.

Set a unique Ethernet IP ADDRESS for each cooler.

Set GATEWAY, NETMASK ADDRESS, and IP PORT to match the BACnet Controller.

Once finished, select SAVE.

Push OK

AFTER CHANGING COMMUNICATION SETTINGS, CYCLE POWER TO COOLER TO SAVE CHANGE.

Note. Only one BACnet protocol may be active at a time.

MULTI-MAGIC CONTROLS

RS-485 NETWORK SETUP

The Multi-Magic® Wall Controller, 3rd Party MODBUS and BACnet MS/TP control options all use the RS-485 serial protocol.

RS-485 CABLE SPECIFICATIONS

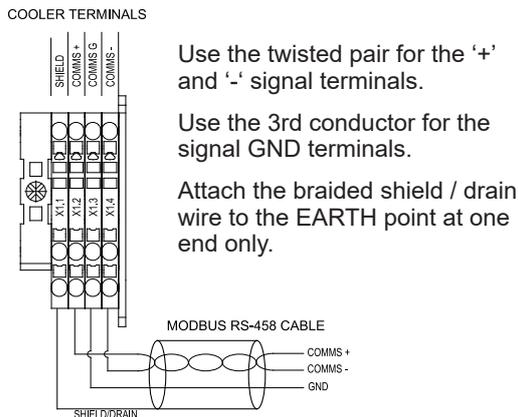
The Installer must supply communication cable between the primary controller and connected coolers to the following specification.

- Suitable for RS-485 applications
- Minimum 1 twisted pair (TP) and a third conductor
- Copper conductors
- 0.5 mm² / AWG 20
- Braided shield with drain wire
- Characteristic impedance 120Ω
- Nominal capacity between conductors 89 pF/m
- Nominal capacity between conductors and shielding 161pF/m

Note: Non-shielded cables are not protected against electromagnetic interference which can cause signal degradation.

RS-485 CABLE CONNECTIONS

The RS-485 serial terminals are located on the inside of the control enclosure door.



ILL3705

MODBUS RS-485 Terminal Details	
Type	Push-In
Stripping Length	8 mm - 10 mm / 5/16" - 3/8"
Cable Termination	Ferrule with plastic sleeve
2x Conductors Cross Section (Flexible)	0.5 mm ² / 20 AWG

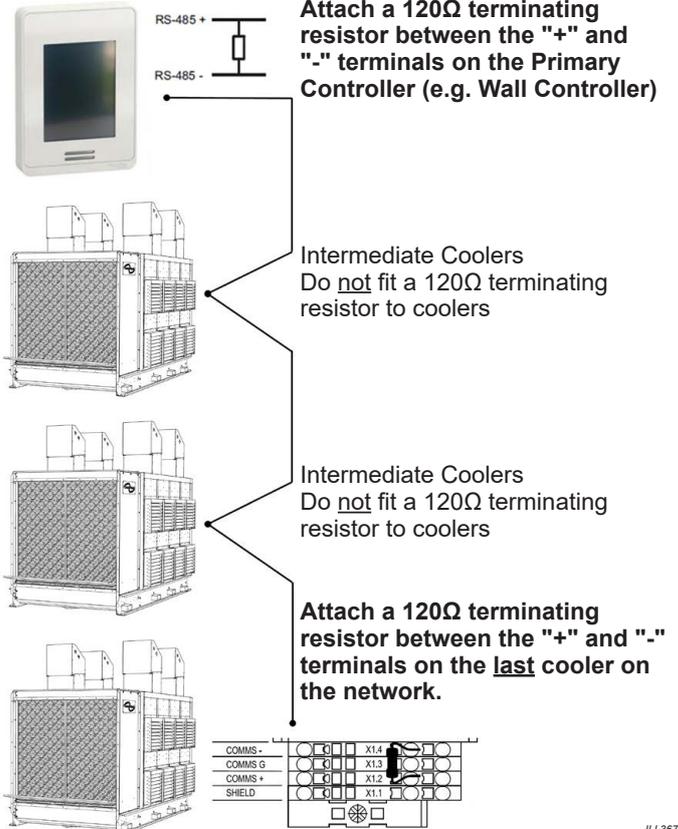
RS-485 CABLE WIRING RULES

The following rules must be applied when setting up a RS-485 network:

- Communication wiring must be kept separate from AC power wiring.
- Always route communication cables at least 300mm (12") away from high voltage cables and high-power machines.
- Crossover high power cables at right angles.
- Maximum cable length from Wall Controller / Primary to first cooler is 100m (330ft).
- Maximum cable length between each cooler is 100m (330ft).
- Maximum overall cable length is 1000m (3280ft).
- Coolers must be connected in daisy-chain style, not star or multi-drop..

RS-485 TERMINATING RESISTORS

Daisy-chained RS-485 networks require two 120Ω terminating resistors, one at the start and one at the end of the communication chain.



ILL3677

See Appendix A for an example wiring schematic.

RJ45 ETHERNET SETUP

The BACnet IP control option uses the RJ45 ethernet port, located on top of the Multi-Magic® PLC.

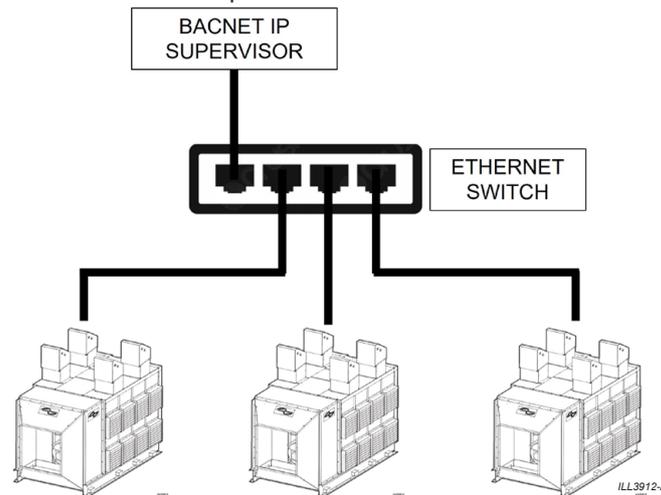
ETHERNET CABLE SPECIFICATIONS

The Installer must supply ethernet cable between the primary controller and connected coolers to the following specification.

- Cat 5, 5e, 6 or 6e shielded

ETHERNET CABLE WIRING RULES

- Maximum single distance between devices is 100m (330ft).
- Each cooler has a single RJ45 ethernet port, so an ethernet switch or router is required

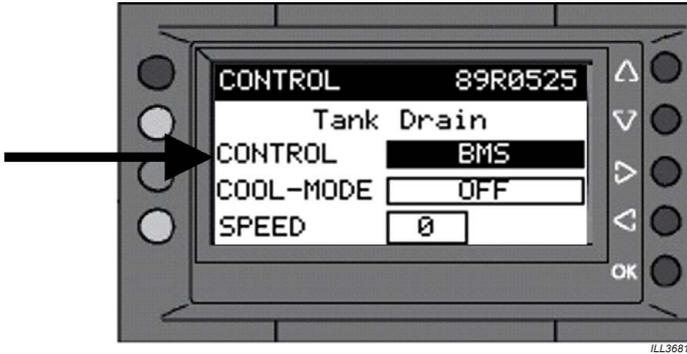


ILL3912-A

MULTI-MAGIC CONTROLS

CONTROL METHOD OPTION 4 (BMS)

LOW VOLTAGE BUILDING MANAGEMENT SYSTEM



The basic functions of cooler can be controlled via a low voltage Building Management System and the series of terminals located on the control enclosure door. Ensure "BMS" is selected on the CONTROL screen.

18	FAULT
17	FAULT
16	BMS GND
15	BMS SPD
14	BMS DEC
13	BMS IEC

ID	TYPE	FUNCTION
FAULT	DIGITAL OUTPUT	Fault Output. Configurable NC or NO. See Settings
FAULT	DRY CONTACT	
BMS GND	GROUND	
BMS SPD	ANALOGUE INPUT 0-10Vdc	Fan Speed Input
BMS IEC	DIGITAL INPUT DRY CONTACT	Cooler Operating Mode. See Logic Table
BMS DEC	DIGITAL INPUT DRY CONTACT	

BMS FAULT OUTPUT

The fault output is a pair of dry contact terminals which can be used to switch an external power supply.

- Maximum Voltage: 250 Vac
- Maximum Current: 3A
- Minimum Switching Capacity: 100mA / 5Vdc

The fault output can be configured to be Normally Open (close in Fault state) or Normally Closed (open in Fault state). See the Commissioning Section for instructions on how to set.

The output is available for use in all Primary Control Methods, not just BMS. For example, a Wall Controller can be used for local zone control, with the fault signal monitored by a central building management system.

BMS CONTROL INPUTS

The cooler operating mode is set via the IEC, DEC and SPD input terminals with the following logic.

PRIMARY CONTROL METHOD	COOLER FUNCTION	IEC TERMINAL	DEC TERMINAL	SPD (Vdc) TERMINAL
BMS	OFF	FALSE	FALSE	0
BMS	VENT	FALSE	FALSE	>1.3
BMS	INDIRECT COOL ONLY	TRUE	FALSE	>1.3
BMS	DIRECT COOL ONLY*	FALSE	TRUE	>1.3
BMS	INDIRECT & DIRECT COOL	TRUE	TRUE	>1.3
BMS	CLEAR FAULT	FALSE	FALSE	0.9 - 1.3 for 30 seconds
BMS	MANUAL DRAIN	FALSE	FALSE	0.5 - 0.9 for 10 seconds
W/C	VENT FIXED LOW SPEED	TRUE	FALSE	N/A
W/C	VENT FIXED HIGH SPEED	FALSE	TRUE	N/A

*Note: DEC Cool Mode only operates on Supercool coolers

Warning: The BMS IEC and DEC input terminals are non-isolated dry contacts. Do not apply an external power supply, instead use a switch to connect the input terminal to the BMS GND terminal.

BMS FAN SPEED INPUT

The cooler fan speed is set by applying an analogue 0-10Vdc signal to the Fan Speed Input terminal, with the following logic;

BMS FAN SPEED	MINIMUM VOLTAGE	MAXIMUM VOLTAGE
	Vdc	Vdc
OFF	0.00	1.29
1	1.30	1.79
2	1.80	2.69
3	2.70	3.59
4	3.60	4.49
5	4.50	5.39
6	5.40	6.29
7	6.30	7.19
8	7.20	8.09
9	8.10	8.99
10	9.00	10.00

BMS CABLING REQUIREMENTS

To avoid signal degradation use shielded, properly grounded cables for all analogue and digital inputs and outputs. Route input and output cables separately from high voltage power cables. Interconnection wiring shall be separated by reinforced insulation to any live parts.

BMS Terminal Details	
Type	Push-In
Stripping Length	8 mm - 10 mm / 5/16" - 3/8"
Cable Termination	Ferrule with plastic sleeve
2x Conductors Cross Section (Flexible)	0.5 mm ² / 20 AWG

See Appendix B for an example BMS wiring schematic.

MULTI-MAGIC CONTROLS

CONTROL METHOD OPTION 5 (LOCAL)

PLC LOCAL CONTROL



The basic functions of cooler can be manually controlled from the CONTROL screen. This mode is recommended for initial setup and servicing only.

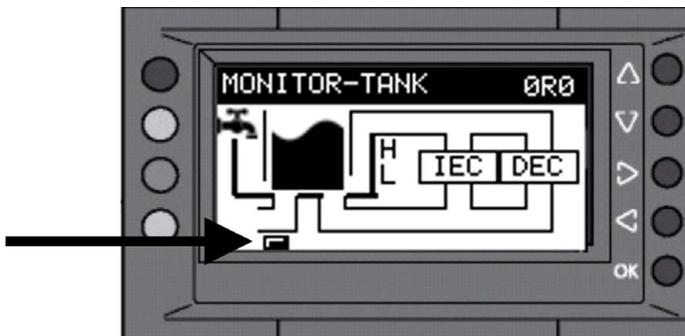
Ensure "LOCAL" is selected on the CONTROL screen.

Select the required COOL-MODE

- Vent = Fan only.
- Indirect = Fan & Indirect Evaporative Cooling
- Direct = Fan & Direct Evaporative Cooling*
- Supercool = Fan & Indirect & Direct Evaporative Cooling*.

For all modes, set the SPEED between 0 and 10 to run the fan.

***Note:** Direct and Supercool Mode only operates on Supercool coolers.



To start a Manual Drain select the button under the tank icon on the MONITOR-TANK screen.

MANUAL DRAIN

All control modes provide an option to complete a manual tank drain.

When triggered, the drain valve will open and stay open for at least 10 minutes.

During this period, all pumps will stop and the inlet solenoid valve will remain closed, however the fan will continue to run at the requested speed.

Once triggered, it is not possible to close the drain valve again until the 10 minutes as elapsed.

After 10 minutes the cooler will resume running in requested operating mode.

FREEZE PROTECTION

When a Multi-Magic® Ambient Sensor is installed, the Freeze Protection function is automatically enabled.

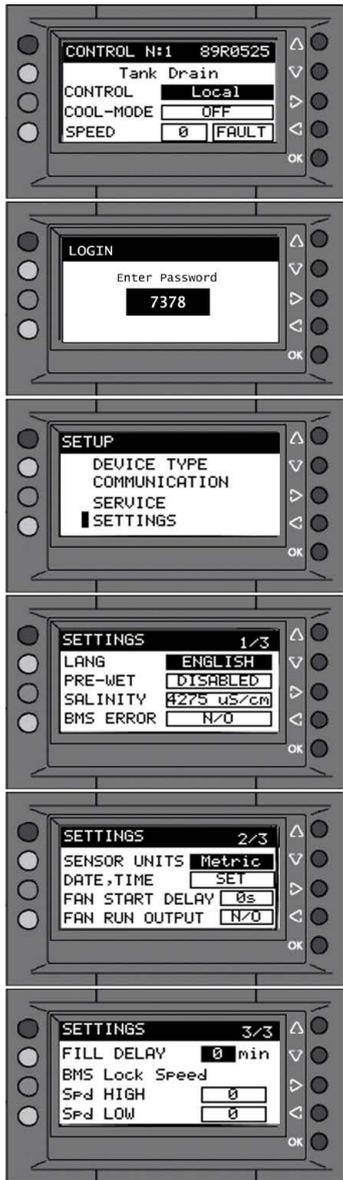
When the ambient temperature is measured below 5°C (41°F) for 20 minutes freeze protection mode is enabled.

Once enabled, the drain valve will open, all pumps will stop and the inlet solenoid valve will remain closed, however the fan will continue to run at the requested speed.

Once the ambient temperature is measured above 5°C (41°F) for 20 minutes freeze protection mode will be deactivated and the cooler will resume running in requested operating mode.

MULTI-MAGIC CONTROLS

CHANGING COOLER SETTINGS



Push and hold the RIGHT button until the password screen is displayed.

Use the navigation LEFT/RIGHT and UP/DOWN buttons to enter password "7378" and push OK to display the SETUP screen.

Use the navigation UP/DOWN buttons to move the cursor to SETTINGS and push OK.

Use the navigation LEFT/RIGHT buttons to move between Pages 1, 2 and 3.

Use the navigation UP/DOWN buttons to move the cursor to the required setting.

Push OK to activate the field.

Use the navigation UP/DOWN buttons to set a unique value.

Push OK to save the setting

Long press LEFT to return to the previous screen.

SETTING	VALUES
LANGUAGE	English (Default), Spanish, Italian, French, Portuguese
PRE-WET	Enabled Disabled (Default)
SALINITY DRAIN SET POINT	4275 uS/cm (Default) 2305 uS/cm
BMS FAULT STATE OUTPUT LOGIC	Normally Open (Default) Normally Closed
SENSOR UNITS	Metric (Default) Imperial
DATE TIME	Set for use with Fault Codes and Drain History
FAN START DELAY	0s (Default) -120s, -90s, -60s, -30s +30s, +60s, +90s, +120s
FAN RUN OUTPUT LOGIC	Normally Open (Default) Normally Closed
FILL DELAY	0 (Default) 5m, 10m, 15m, 20m, 25m, 30m
BMS LOCK SPEED	HIGH: 0-10 (Default 0) LOW: 0-10 (Default 0)

PRE-WET

Pre-Wet ensures only cooled air is delivered, at the expense of a longer start up time.

Upon entering IEC mode, if the pumps have not run in the last 30 minutes, Pre-Wet first ensures the water tank is full and then runs an extra 6-minute start up pump cycle to saturate the heat exchanger cores.

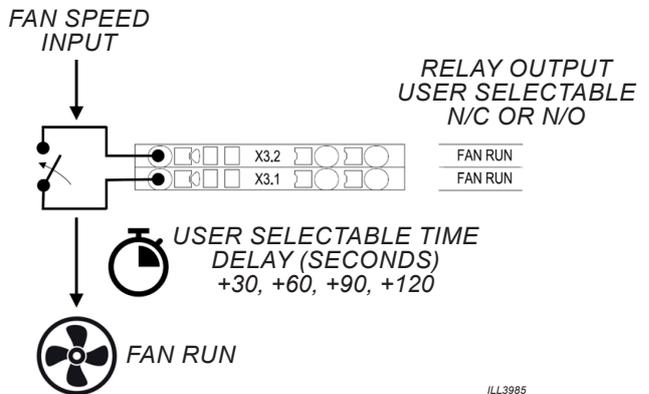
During this Pre-Wet phase, the supply fan will be restricted to Speed 1 regardless of controller input or previously selected fan speed.

FAN START DELAY & RUN OUTPUT RELAY

The Fan Start Delay can be a positive or negative timer.

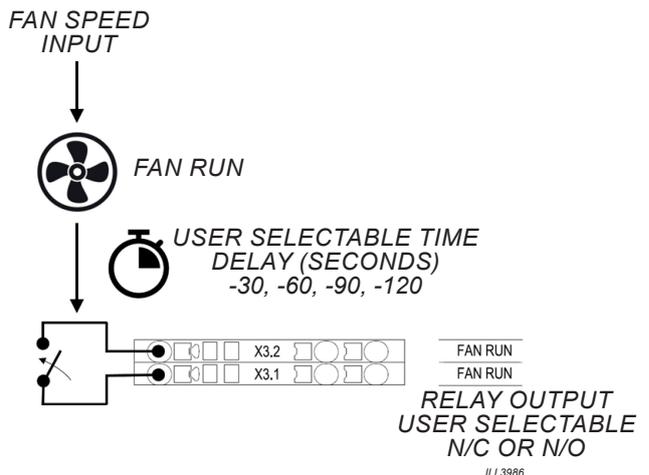
If a positive timer is selected, the fan run output relay changes state but the fan does not start until the timer has expired.

For example, this can be used to open or close 3rd party dampers before the cooler fans start.



If a negative timer is selected, the fans start when requested, but the fan run output relay does not change state until the timer has expired.

For example, this can be used to ensure internal building pressure is maintained before opening 3rd party relief vents.



The fan run output is a pair of dry contact terminals which can be used to switch an external power supply.

- Maximum Voltage: 250 Vac
- Maximum Current: 3A
- Minimum Switching Capacity: 100mA / 5Vdc

The fan run output can be configured to be Normally Open (close in when fan runs) or Normally Closed (open when fan runs).

The output is available for use in all Primary Control Methods.

MULTI-MAGIC CONTROLS

FILL DELAY

Fill Delay is a timer which delays opening the inlet solenoid valve by a preset amount (5, 10, 15, 20, 25, 30 minutes).

This is recommended for use with large groups of coolers running from the same control inputs, where simultaneous commands to start cooling place excessive demand on available water supply.

Using the Fill Delay timer allows installers to stagger the demand for water across multiple coolers whilst maintaining a single control input.

When the Fill Delay timer is running, the MESSAGE BAR will display a countdown timer.

BMS LOCK SPEED

BMS Lock is a special mode for use with a Multi-Magic® Wall Controller.

When Wall Controller is selected as the Primary Control Method, use the BMS IEC or DEC input terminals on any connected cooler to remotely lockout the Wall Controller.

When applied, no cooler control from the Wall Controller is possible and the cooler can be configured to either shutdown or run in VENT mode at one of two different fixed speeds

For example, if low speed is set to 3 and high speed is set to 8.

LOW SPEED SETTING (0-10)	HIGH SPEED SETTING (0-10)	IEC TERMINAL	DEC TERMINAL	COOLER FUNCTION
0	0	FALSE	TRUE	SHUTDOWN
0	0	TRUE	FALSE	SHUTDOWN
0	0	TRUE	TRUE	SHUTDOWN
3	8	TRUE	FALSE	VENT SPEED 3
3	8	FALSE	TRUE	VENT SPEED 8

This feature may be useful when Building Managers wish to remotely shutdown coolers during certain hours, enable overnight building purges or when Climate Wizard products are used as blowers for in line heaters during the winter season.

MESSAGE BAR CONTENTS

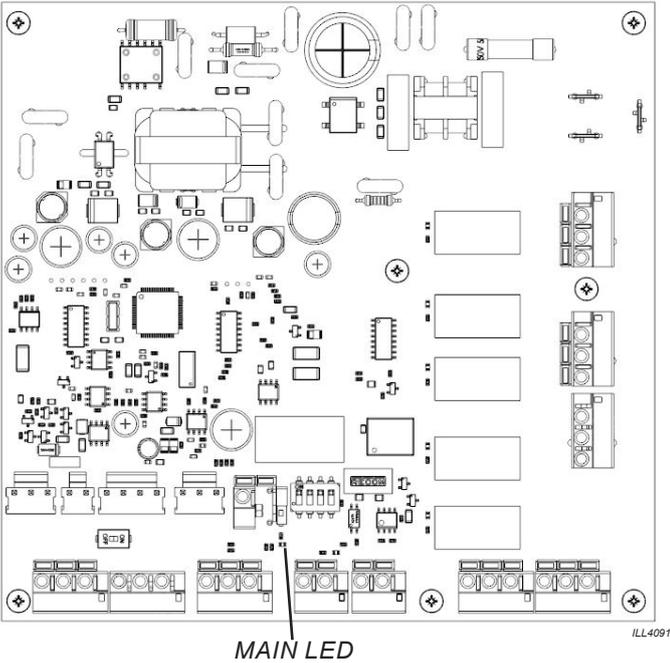


The MESSAGE BAR contains useful information about the current cooler state. The MESSAGE BAR will cycle through all active messages.

MESSAGE	DESCRIPTION
STANDBY	Cooler is ON but no control input active.
VENT MODE	Fan is running but no cooling stage is on.
FILL DELAY MM:SS	Tank fill delay timer is running. Inlet Water Solenoid Valve will open when the timer has expired.
TANK INITIAL FILL	Inlet Water Solenoid Valve is on and water is entering the tank. Pumps will not start until the tank is full.
PREWET FAN LIMITED	Pre-Wet is enabled. The pumps are running for an extra 6 minutes whilst the fan speed is limited to Speed 1
FAN START DELAY	Fan start delay is enabled. Fans will start after the delay timer has expired.
INDIRECT PUMP RUNNING	IEC COOL MODE IEC pump is running. Pump cycles ON for 60s and OFF for 90s.
CORE DRAIN	IEC COOL MODE IEC pump have just turned OFF and water is returning back to tank.
TANK FILL-IEC	IEC COOL MODE Inlet Water Solenoid is on and water is entering the tank.
TANK LEVEL OK	IEC COOL MODE Tank is full, waiting for IEC pumps to start.
SALINITY UPDATE	Tank water has reached the high probe and water conductivity is being measured.
TANK FILL-DEC	DEC COOL MODE Inlet Water Solenoid is on and water is entering the tank.
DEC SATURATION	DEC COOL MODE DEC pump is pulsing ON/OFF to slowly wet the Chillcel® media.
DIRECT PUMP RUNNING	DEC COOL MODE DEC pump is running. Pump runs continuously.
SALINITY DRAIN	Tank water has reached the maximum salinity level and a partial tank drain and fill cycle is in progress.
CLEAN WATER DRAIN	The chlorinator has not run for 24 hours and a complete tank drain and fill cycle is in progress.
TANK DRAIN	3-day tank drain delay or manual drain triggered.
FREEZE PROTECTION	The tank has drained to prevent water freezing.
REMOTE SHUTDOWN	Multi-Magic® Wall Controller has been locked by a BMS input. Refer to Wall Controller manual.
BMS LOCK HIGH SPEED	Multi-Magic® Wall Controller has been locked by a BMS input to VENT Mode Refer to Wall Controller manual.
BMS LOCK LOW SPEED	Multi-Magic® Wall Controller has been locked by a BMS input to VENT Mode Refer to Wall Controller manual.

MULTI-MAGIC CONTROLS

WATER MANAGER LED STATES



OPERATION PHASE	MAIN LED STATE
FIRST 30-45 SECONDS AFTER POWER UP	ON GREEN
NORMAL RUNNING	FLASHING GREEN
COMMUNICATION FAULT	FLASHING RED

FAULT CODE DISPLAY

Active Fault Codes will cause the **FAULT** button to appear on the CONTROLS page.

Selecting the **FAULT** button will open the **ACTIVE FAULTS** page, listing all the current active faults.

Select the **INFO** button to display a QR code.

Scanning the QR Code will direct users to the Seeley Service Technical Support website.

ILL3980

Select the **RESET** button to reset each active fault. Cycle the cooler power to reset all active faults.

All faults are added to the **FAULT CODE HISTORY** screen.

On all screens, long press the **LEFT** button to return to the **CONTROL** page.

MULTI-MAGIC CONTROLS

FAULT CODE DESCRIPTIONS

All faults below shut the cooler down unless stated.

Fault codes labelled as Running Faults will allow the cooler to continue to run, however performance may be reduced.

FAULT CODE	FAULT DESCRIPTION	SUGGESTED REMEDY
Fault Code 1	PLC – PCBA COMMUNICATION FAILURE Cooler PLC has lost communication with PCBA fitted inside control box for at least 1 minute.	Check LED status on PCBA. Check communication wiring between PLC and PCBA Replace PCBA
Fault Code 2	FAILURE TO DETECT WATER AT LOW PROBE No water at low probe 20 minutes after solenoid valve opening.	Check water supply on. Check solenoid valve open. Check drain valve closed. Check water management probe position relative to drain valve overflow. Clean water management probe.
Fault Code 3	FAILURE TO DETECT WATER AT HIGH PROBE No water at high probe 30 minutes after water detected at low probe.	Check water supply on. Check solenoid valve open. Check water management probe position relative to drain valve overflow. Clean water management probe. Check water supply pressure sufficient to maintain tank capacity.
Fault Code 4	FAILURE TO CLEAR LOW PROBE DURING DRAIN Water still detected at low probe 20 minutes after drain opened.	Check drain valve open. Check drain pipework not blocked. Check solenoid valve closed. Clean water management probe.
Fault Code 5	WATER DETECTED AT HIGH PROBE BUT NOT LOW PROBE Water still detected at high probe 30 minutes after water not detected at low probe.	Clean water management probe.
Fault Code 7	SUPPLY MOTOR ERROR Motor has been in fault state for at least 1 minute. If 1 Motor is faulty, running fault If 2 Motors are faulty, cooler shuts down	Check Motor Power Cable connections. Check Motor Communications Cable connections. Check MONITOR screen to identify which motor is in fault.
Fault Code 9	PLC EXPANSION MODULE FAILURE PLC has lost communication with expansion module.	Check communication cable connections.
Fault Code 10	CHLORINATOR FAULT Chlorinator has reached end of life or is experiencing a short circuit. Running Fault	Check cooler PLC flashing LEDs for fault type. Check no debris between chlorinator plates. Replace Chlorinator
Fault Code 11	ROOM AIR SENSOR FAULT Temperature or Relative Humidity input value has been 0V or 10V for at least 10 minutes. Running Fault	Check Sensor values at PLC cooler screen "SENSORS" menu Check Sensor wiring If no Sensor fitted, check Sensor has not been accidentally enabled on Wall Controller and/or PLC
Fault Code 12	AMBIENT AIR SENSOR FAULT Temperature or Relative Humidity input value has been 0V or 10V for at least 10 minutes. Running Fault	Check Sensor values at PLC cooler screen "SENSORS" menu Check Sensor wiring If no Sensor fitted, check Sensor has not been accidentally enabled on Wall Controller and/or PLC
Fault Code 13	EXHAUST MOTOR ERROR Motor has been in fault state for at least 1 minute. If 1 or 2 Motors are faulty, running fault If 3 or 4 Motors are faulty, cooler shuts down	Check Motor Power Cable connections. Check Motor Communications Cable connections. Check MONITOR screen to identify which motor is in fault.
Fault Code 14	DUCT AIR SENSOR FAULT Temperature or Relative Humidity input value has been 0V or 10V for at least 10 minutes. Running Fault	Check Sensor values at PLC cooler screen "SENSORS" menu Check Sensor wiring If no Sensor fitted, check Sensor has not been accidentally enabled the PLC.
Fault Code 15	PRESSURE SENSOR FAULT Pressure input value has been 0V or 10V for at least 10 minutes whilst the fans fan been running. Running Fault.	Check Sensor values at PLC cooler screen "SENSORS" menu Check Sensor wiring If no Sensor fitted, check Sensor has not been accidentally enabled the PLC.
Fault Code 16	COMMUNICATION FAILURE PLC has lost communication with Primary Controller for at least 5 minutes	For Wall Controller, check communication cable connections including 120Ω Modbus terminating resistors. For Modbus and BACnet, Primary Controller / Supervisors needs to send a packet within 5 minutes..

COMMISSIONING

Owner Name:

Telephone:

Address:

.....

Installer:

Dealer:

Model No:

Date Installed:

Serial No:

INSTALLATION CHECKLIST

This checklist only covers the key points to be observed during installation. Always refer to the relevant sections of the installation manual for full details.

COOLER LOCATION

- The cooler is adequately supported, secure, and level.
- The cooler is installed in a position that allows adequate access for future maintenance and servicing activities.

INTAKE AIR

- The cooler will always receive a plentiful supply of fresh air.
- Inlet air filters installed correct way round. Observe airflow direction arrow on filter frame.

SUPPLY AIR DUCTWORK

- Vibration absorbing flexible connections are used for all duct connections to the cooler.
- All building penetrations are correctly flashed and sealed.
- If flexible ducts are used they are fully extended and hung correctly, with no kinks, tight bends, or squashed segments.
- All duct joints are fully sealed with no air leaks.

EXHAUST AIR

- The cooler's exhaust air is not likely to cause corrosion or damage to other nearby items.
- The cooler's exhaust air is not likely to re-circulate into the air intake of the cooler.

ELECTRICAL SUPPLY

- The electrical power supply installation adheres to all local and national regulations.
- The electrical power supply is wired back to the distribution board on its own separate circuit.
- A mains isolation switch, with all pole disconnection, has been installed adjacent to the cooler.
- The owner has been instructed how to electrically isolate the unit in case of an emergency
- Phase to Phase voltage has been measured and is within specification.
- Phase rotation is correct. Check pump spin direction arrow label on top of pump motor.

Record the details

3~ Voltage L1-L2

3~ Voltage L1-L3

3~ Voltage L2-L3

WATER SUPPLY

- The water supply installation adheres to all local and national regulations with no leaks at any fittings or valves.
- The water supply pipes were flushed of any foreign materials before connection to the cooler was made.
- The water is filtered as required.
- Static water pressure to each cooler is between 100kPa (15psi) and 1000 kPa (145psi).
- Opening and closing the inlet water solenoid valve does not cause water hammer.
- Water flow rate to each cooler is greater than 30L/min (8 gal/min) when all coolers are filling.
- Water salinity is greater than 100uS/cm.
- An isolation valve has been installed adjacent to the cooler.
- The owner has been instructed on how to isolate the water supply to the cooler in case of emergency.

Record the details

Water Pressure

Water Salinity

WATER DRAIN

- The water drain installation adheres to all local and national regulations with no leaks at any fittings or valves.
- Drain water pipes/hoses are free from any restrictions (kinks) or blockages.
- The drain water does not discharge onto the roof surface.

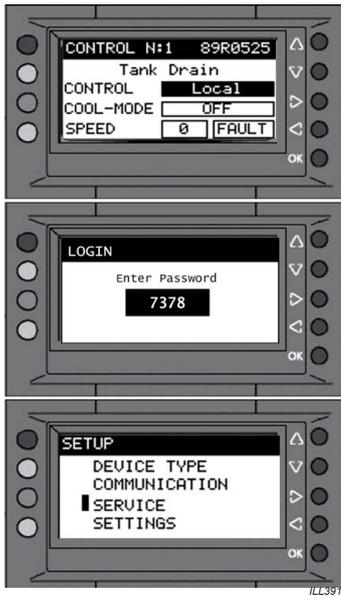
Signed by Installer:

Commissioning Technician:

....

COMMISSIONING

SETUP MENU ACCESS

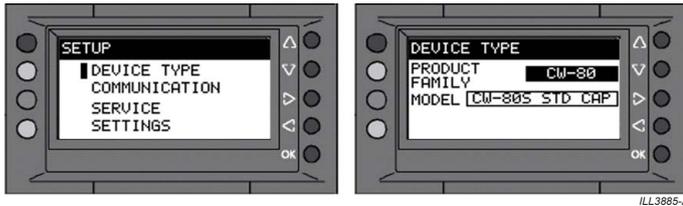


Push and hold the RIGHT button until the password screen is displayed.

Use the navigation LEFT/RIGHT and UP/DOWN buttons to enter password "7378" and push OK to display the SETUP screen.

MULTI-MAGIC DEVICE TYPE

Prior to running the cooler for the first time, check the device type in the PLC SETUP menu matches the cooler rating label.



Record the details

- Product Family.
- Model

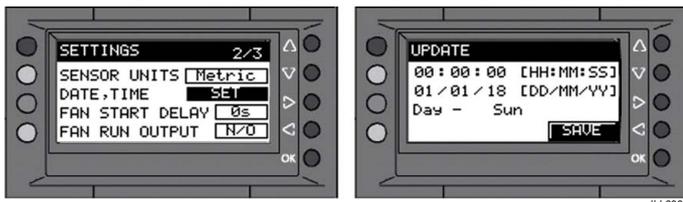
TIME & DATE

To assist with fault code and drain history logs, set the time and date in the PLC SETTING menu.

Use the navigation LEFT/RIGHT and UP/DOWN buttons to set the Time, Date and Day.

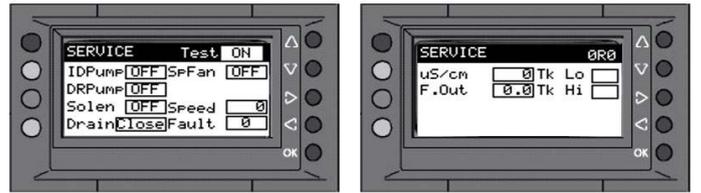
Select SAVE to commit values to memory.

Note: If using BACnet, Time & Date are set by BACnet objects.



Signed by Installer:

TEST MENU



To assist with commissioning, each component on the cooler can be controlled individually via the SERVICE - TEST MENU on the cooler PLC.

Set TEST to ON to control components.

Use the LEFT/RIGHT buttons to access 2 pages.

WATER MANAGEMENT SYSTEM CHECKS

Turn inlet water solenoid valve ON.

- Confirm water enters reservoir.
- Wait until Tank Low Level (Tk Lo) probe changes state.
- Confirm Water Salinity reading is greater than 100 uS/cm.
- Confirm Chlorinator is fully submerged at low water level.
- Wait until Tank High Level (Tk Hi) probe changes state.
- Turn inlet water solenoid valve OFF.

HEAT EXCHANGER FLUSH

To reduce the probability of unusual odours, foaming, or water pull off, it is recommended to flush new heat exchangers with fresh water and then drain the reservoir.

Turn Direct Pump (DRPump) ON (Supercool Coolers only).

- Confirm Direct Pump starts.
- Confirm pump spins in the correct direct (check arrow).
- Run for 5 minutes to flush the Direct Heat Exchangers.
- Turn Direct Pump (DRPump) OFF.

Turn Indirect Pumps (IDPump) ON.

- Confirm both Indirect Pumps start.
- Confirm pump spins in the correct direct (check arrow).
- Run for 5 minutes to flush the Indirect Heat Exchangers.
- Turn Indirect Pumps (IDPump) OFF.

Set Drain to OPEN.

- Confirm the drain valve opens.
- Confirm water fully drains from the reservoir.

SUPPLY FAN CHECKS

Set Supply Fans (SpFAN) to ON. Set Speed initially to 1 and then progressively increase to 10.

- Check for unusual or excessive noise at various fan speeds.
- Check for excessive vibration and/or rattle sounds.

EXHAUST FAN CHECKS

Set Exhaust Fans (ExhFAN) to ON. Set Speed initially to 1 and then progressively increase to 10.

- Check for unusual or excessive noise at various fan speeds.
- Check for excessive vibration and/or rattle sounds.

Commissioning Technician:

COMMISSIONING

MULTI-MAGIC COOLER SETTINGS

To aid future servicing it is recommended to record the PLC setting here.

SETTING	VALUES
PRIMARY CONTROL METHOD	<input type="checkbox"/> Local (LCL) <input type="checkbox"/> Wall Controller (W/C) <input type="checkbox"/> Low Voltage BMS (BMS) <input type="checkbox"/> High Level Modbus (MBS) <input type="checkbox"/> BACnet (BCN)
LANGUAGE	<input type="checkbox"/> English (Default) <input type="checkbox"/> Spanish <input type="checkbox"/> Italian <input type="checkbox"/> French <input type="checkbox"/> Portuguese
PRE-WET	<input type="checkbox"/> Enabled <input type="checkbox"/> Disabled (Default)
SALINITY DRAIN SET-POINT	<input type="checkbox"/> 4275 uS/cm (Default) <input type="checkbox"/> 2305 uS/cm
BMS FAULT OUTPUT LOGIC	<input type="checkbox"/> Normally Open (Default) <input type="checkbox"/> Normally Closed
SENSOR UNITS	<input type="checkbox"/> Metric (Default) <input type="checkbox"/> Imperial
FAN START DELAY	<input type="checkbox"/> 0s (Default) <input type="checkbox"/> -120s <input type="checkbox"/> -90s <input type="checkbox"/> -60s <input type="checkbox"/> -30s <input type="checkbox"/> +30s <input type="checkbox"/> +60s <input type="checkbox"/> +90s <input type="checkbox"/> +120s
FAN RUN OUTPUT LOGIC	<input type="checkbox"/> Normally Open (Default) <input type="checkbox"/> Normally Closed
TANK FILL DELAY	<input type="checkbox"/> 0s (Default) <input type="checkbox"/> 5m <input type="checkbox"/> 10m <input type="checkbox"/> 15m <input type="checkbox"/> 20m <input type="checkbox"/> 25m <input type="checkbox"/> 30m
BMS LOCK SPEED (0-10)	<input type="checkbox"/> HIGH = _____ <input type="checkbox"/> LOW = _____

MULTI-MAGIC RS-485 SETTINGS

If used, record the PLC settings for Wall Controller, Modbus and BACnet MS/TP communication here.

SETTING	VALUES
NAME*	<input type="checkbox"/> Default = Cooler 1 <input type="checkbox"/> Actual =
Unique NODE ADDRESS (1...99)	<input type="checkbox"/> Default = 1 <input type="checkbox"/> Actual =
BAUD RATE	<input type="checkbox"/> 9600 <input type="checkbox"/> 19200 <input type="checkbox"/> 38400 (Default) <input type="checkbox"/> 57000 <input type="checkbox"/> 76800 <input type="checkbox"/> 115200
PARITY	<input type="checkbox"/> NULL (Default) <input type="checkbox"/> ODD <input type="checkbox"/> EVEN
120Ω TERMINATING RESISTORS	<input type="checkbox"/> Wall Controller / Primary <input type="checkbox"/> Last Cooler

* Applicable to BACnet MS/TP only

MULTI-MAGIC IP SETTINGS

If used, record the PLC settings BACnet IP communication here.

SETTING	VALUES
IP ADDRESS	<input type="checkbox"/> Default = 192.168.10.50 <input type="checkbox"/> Actual =
GATEWAY	<input type="checkbox"/> Default = 192.168.10.1 <input type="checkbox"/> Actual =
SUBNET MASK	<input type="checkbox"/> Default = 255.255.255.0 <input type="checkbox"/> Actual =
BACNET IP PORT	<input type="checkbox"/> Default = 47808 (0xBAC0) <input type="checkbox"/> Actual =

CUSTOMER HANDOVER CHECKLIST

Run the cooler for at least 20 minutes in IEC and DEC mode at Speed 10 and confirm:

- Leaving temperatures are sufficiently cooler than ambient temperatures.
- No unusual odours.
- No visible water leaks.
- No excess water is draining from overflow.

Finally, confirm that:

- All installation rubbish has been removed.
- Any property damage reported and/or repaired.
- The customer has been given a copy of the cooler manual which includes Operation, Maintenance & Warranty details.

Signed by Installer:

Commissioning Technician:

....

MAINTENANCE SCHEDULE

MAINTENANCE FREQUENCY

Maintenance of an indirect evaporative cooler is essential in maintaining proper performance and reliability.

All maintenance must be done by competent, qualified, licensed technicians, in accordance with National and/or Local Regulations.

The frequency of service is largely dependent on the conditions under which the cooler is operated. External factors, such as air and water quality, can affect the serviceable life of the cooler and its components. In particular, installations using hard water, usually defined as greater than 200mg/L, will experience greater scaling problems requiring a more frequent cleaning regime.

Similarly, the amount and type of use can also have a significant impact. The guidelines listed below are intended to provide help in formulating a proper service regime. Local, and in some cases, individual factors should be taken into account when deciding on the frequency of visits.

HEALTH REGULATIONS. In some regions, regulations require that evaporative air coolers be serviced at specific intervals. Ensure all maintenance is done in accordance with any local and national regulations.

TYPE OF INSTALLATION	MAINTENANCE SCHEDULE SERVICING FREQUENCY	AIR FILTERS	CHLORINATOR
COMMERCIAL / INDUSTRIAL INSTALLATIONS (Seasonal use)	Maintenance Schedule servicing must be a minimum of twice a year, typically immediately before and after the summer season.	Air filters should be cleaned every month of operation and replaced every year.	Chlorinators should be cleaned during each service and replaced every 4 years.
COMMERCIAL / INDUSTRIAL INSTALLATIONS (All year use)	Maintenance Schedule servicing must be performed every 3 months.	Air filters should be cleaned every month and replaced every year.	Chlorinators must be cleaned during each service and replaced every 2 years.

While installation is not covered by warranty (e.g. duct work, roof penetrations, electrical and water connections etc.), these items should be checked as they can affect the performance (and/or safety) of the cooler. For this reason, they are included in the Maintenance Schedule.

WINTER OPERATION AND SHUTDOWN

Climate Wizard coolers cannot be used in any cooling mode (INDIRECT, DIRECT or SUPERCOOL) in freezing conditions. In particular the inlet water solenoid valve, pumps, and drain valve are likely to fail in such conditions.

It is recommended that, to prevent damage to cooler components, the following tasks are completed before the start of the winter season.

1. Drain and clean the reservoir.
2. Drain down and isolate the water supply.
3. Isolate the power.

For installations requiring continuous operation through the winter, it is possible to run the cooler in VENT mode down to -20°C (-4°F), however customers must ensure the controls are not accidentally set to any cooling mode in these conditions.

Coolers fitted a Multi-Magic® Ambient Sensor will automatically enable freeze protection. See page 27 for full details.

MAINTENANCE SCHEDULE

MAINTENANCE CHECKLIST

DEFINITIONS

Clean - To wash and remove all dirt, grit or debris.

Check/Inspect - To visually inspect the item for correct operation, fitment and functionality.

Test - To turn the item on and off and confirm correct function.

Replace - To remove the existing item and replace with a specified genuine replacement part.

Note! It is important that only new Seeley International factory authorised replacement parts be used in this cooler. Failure to do so may void warranty, cause improper cooler performance, and unsafe operation.

SERVICE NO.	1	2	3	4	5	6	7	8	9	10	11	12
EXTERNAL INSPECTION												
Check/Inspect the following parts for general deterioration, leaks, damage, corrosion, missing components, secure connections, and function.												
Cooler Body												
Supply Air Duct												
Support Frames / Curb												
Vibration Isolation												
Roof Flashing												
Isolation Switch												
Circuit Breakers/Fuses												
Power Cables												
Communication Cables												
Water Supply Pipe												
Water Supply Strainer/Filter												
Water Isolation Valve												
Drain Hose												
Remove & Clean the following components.												
Air Filters*												
INTERNAL WATER DISTRIBUTION												
Check/Inspect the following for general condition, damage and secure connections.												
Water Distribution Hoses												
4-Way Indexing Valve												
Remove & Clean the following components												
Water Inlet Y-Strainer												
Pump Intake Strainers												
Indirect Pump Y-Strainer.												
Water Probe Pins												
Chlorinator Cell*												
Tank Surfaces												
Test the following components												
Water Probe Resistance												
HEAT EXCHANGERS												
Remove & Clean the following components												
Indirect Spreader												
Direct Spreader												

MAINTENANCE SCHEDULE

FAN & MOTORS												
Check/Inspect the following for general condition and damage.												
Supply Fan Blades												
Exhaust Fan Blades												
Supply Motor Mounts												
Exhaust Motor Mounts												
Test the following.												
Supply Motor Spins Freely												
Exhaust Motor Spins Freely												

* Air Filters and Chlorinators require replacement based on usage. Refer to frequency of service guidelines.

SERVICE NO.	1	2	3	4	5	6	7	8	9	10	11	12
FUNCTIONAL TEST												
Test the following components service screen.												
Inlet Solenoid Valve												
3-Pin Water Probe												
Drain Valve												
Indirect Pump												
Direct Pump												
Supply Fan Speed Control												
Exhaust Fan Speed Control												
Check/Inspect the following whilst running at full speed.												
No excessive noise												
No excessive vibration												
No water leaks												
Correct internal water levels												

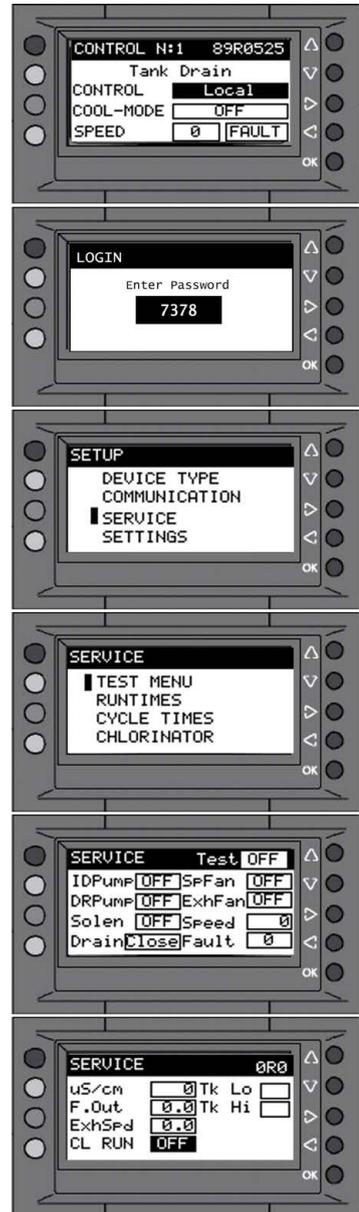
MAINTENANCE INSTRUCTIONS

COOLER CONTROL

Liaise with the Building Manager prior to starting a service.
To avoid any unintended cooler operation from commands received by remote controller, it is recommended that the cooler is set to LOCAL control before performing any maintenance.



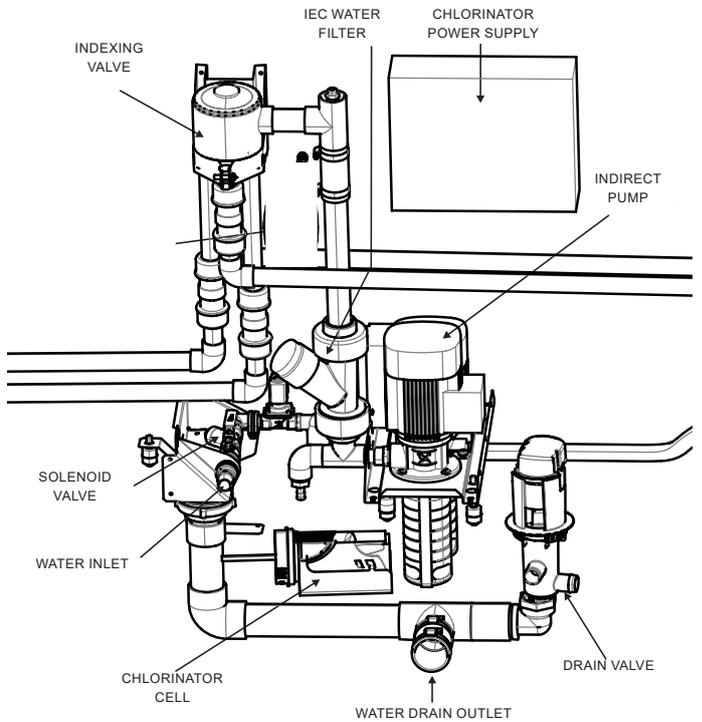
To assist with maintenance and fault finding, each component of the cooler can be controlled individually via the TEST MENU on the cooler PLC.



- Push and hold the RIGHT button until the password screen is displayed.
- Use the LEFT/RIGHT and UP/DOWN buttons to enter password "7378" and push OK to display the SETUP screen.
- Use the UP/DOWN buttons to move the cursor to SERVICE and push OK.
- Use the UP/DOWN buttons to move the cursor to TEST MENU and push OK.
- Set TEST = ON
Use the UP/DOWN buttons to move the cursor between component and push OK to change state.
- Use the LEFT/RIGHT buttons to switch between different Test Menu screens.
- Push and hold the LEFT button to return to the previous menu. Repeat until the display returns to the "CONTROL" menu.

QUARTERLY INSPECTION PROCEDURES

1. Drain the cooler reservoir by initiating a manual drain.
2. Isolate and lockout the power supply to the cooler.
3. Turn off the water supply.
4. Clean the Water Filters.
5. Clean the Pump Strainers & Impellers.
6. Clean the Chlorinator Cell.
7. Clean the Water Management Probe.
8. Clean the Water Reservoir.
9. Clean or Replace the Inlet Air Filters.
10. Inspect the entirety of the cooler body and external components for general deterioration, leaks, damage, corrosion, and loose or missing fasteners.
10. Turn on the power and water supply.
11. Complete the cooler commissioning sequence.



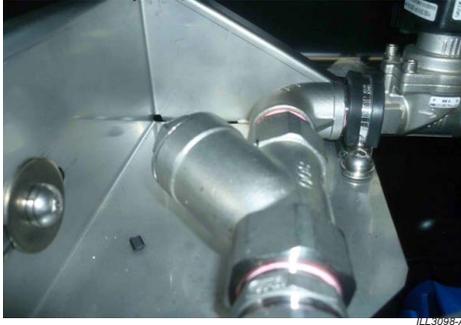
IMPORTANT: UPON COMPLETION OF SERVICE ENSURE PLC CONTROL IS SET BACK TO ORIGINAL SETTING (WALL CONTROLLER, MODBUS, BMS, OR BACNET)

MAINTENANCE INSTRUCTIONS

WATER FILTER MAINTENANCE

There are two water filters, one on the water inlet and a second on the IEC pump discharge.

Inlet Water Y-Strainer



IEC Pump Sediment Strainer



To clean filters, unscrew the centre caps anti-clockwise and remove the internal mesh. Inspect and clean the mesh, removing any solids or residues. Replace the mesh if necessary.

PUMP MAINTENANCE

Pumps require very little maintenance. The mechanical shaft seal is self-adjusting and has wear-resistant seal rings. The pump seals and bearing are lubricated and cooled by the pumped water.

The pump motor ball bearings are grease packed and sealed for life. No further lubrication is necessary.

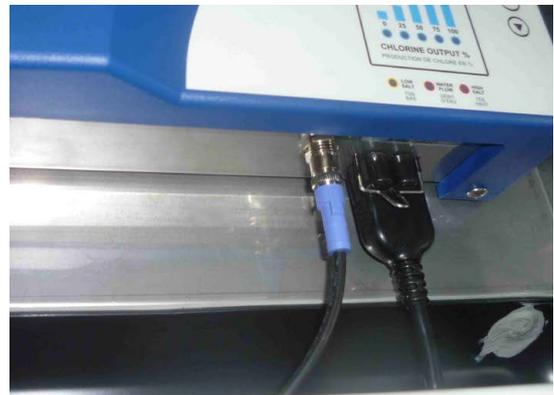
Inspect and clean the pump strainer and impellor housing. Remove any solids or residues from the strainer slots or around the impellor with a soft brush.

CHLORINATOR CELL MAINTENANCE

The chlorinator cell is located underneath the water inlet solenoid valve discharge.

Remove the chlorinator cell by unclipping from mounting cradle fixed to the bottom of the water tank.

Unplug the chlorinator cell from the underside of chlorinator controller. The plug is held in place by a wire retainer.



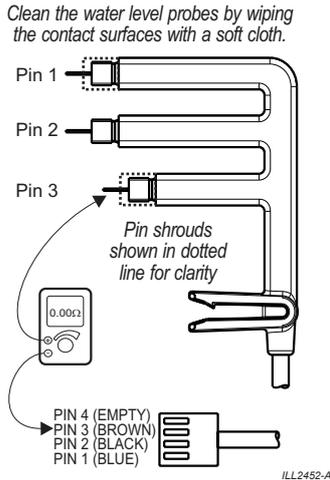
It is normal for the chlorinator cell blades to be covered in white deposits.

1. Remove any excess solids gently, using a soft brush. Take care not to scratch the chlorinator blade surfaces.
2. Wash or hose the chlorinator cell in clean water (hot water if possible).
3. Immerse the chlorinator cell in a plastic container with 5% phosphoric acid solution for at least 10 minutes. Be sure to clean the inner surfaces of the chlorinator cell blades and rinse with fresh water.

MAINTENANCE INSTRUCTIONS

WATER MANAGEMENT PROBE MAINTENANCE

1. The water management probe is located in the back right hand corner of the water tank.
2. Unclip the probe from the bracket and remove the small plastic shrouds from the first and third pins.
3. Clean the pins by wiping the contact surfaces with a soft cloth - do NOT use abrasives.
4. Check the probe pin resistances using a multi-meter (refer figure and wiring diagram - you'll need to unplug the probe lead from the main PCB to do this).



Resistance should be 0-5 ohms. A reading of 5 ohms or greater indicates a faulty probe. Check for shorts between pins: There should be an open circuit.

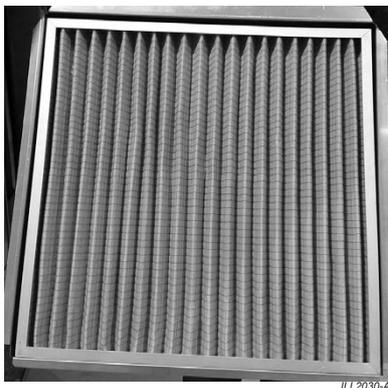
5. Refit the shrouds over pins 1 & 3 and refit the probe to the bracket.

INLET AIR FILTERS

There are 16 inlet air filter, each held inside an intake louvre on the side of the cooler.

The inlet air filters should be replaced as soon as the airflow through the filters is restricted by dust or contaminants. The frequency of changing the inlet air filters is dependent on the air quality at the site.

Replacement inlet air filters are available from SI Service Agents and Climate Wizard Distributors. If alternative air filters are supplied, they should be to EN779 G4 or ASHRAE 52.2 MERV8 standards as a minimum.



When fitting air filters, use the air flow direction sticker on the side of the filter to ensure the correct orientation.

WATER RESERVOIR (TANK)

Use a water hose or low-pressure cleaner to flush all debris down the reservoir drain. After flushing wipe the bottom of the reservoir thoroughly using a wet cloth or brush.

BODY REPAIRS

Coated Carbon Steel Components

The cooler chassis, fan mounting frames and electrical controls enclosure are manufactured from either galvanized steel or steel coated in a thermosetting epoxy polyester powder paint. Care should be taken to avoid causing deep scratches, dents or cleaning these parts with abrasive brushes. Wipe clean with sponges and clean water.

To prevent damaging the protective zinc layer, avoid cleaning galvanized steel with acidic based cleaners. Any mild stains on galvanized steel can be cleaned using common household vinegar or alkaline-based cleaners and then rinsed with water.

Any local areas of corrosion or cracked paint can be treated by applying a heavy duty, zinc-rich, anti-corrosive coating, often called "Zinc Rich Primer" or "Cold Galv". First ensure the surface is free from dust, dirt, grease, oil, rust, scale and other contaminants and then follow the coating manufacturer's application instructions.

Stainless Steel Components

The cooler body is manufactured from stainless steel. Care should be taken to avoid stainless steel surfaces becoming contaminated with iron particles, particularly from grinding/drilling nearby steel structures, using magnetic tipped screwdrivers, or using wire brushes or wool made of carbon steel. Any iron particles should be removed immediately by either washing off using water or wiping off using nylon pads.

Depending upon the local environment and especially when installed in coastal areas, the stainless steel may be susceptible to a common surface discolouration called 'tea staining'. Tea staining is a cosmetic issue only and is caused by superficial surface corrosion.

Any local areas of discolouration, caused by either tea staining or iron particle corrosion can be treated by washing with a proprietary stainless steel cleaner containing phosphoric acid.

INDIRECT HEAT EXCHANGERS

The indirect heat exchangers do not require any maintenance other than visual inspection, which can be completed without removal from the cooler.

However it is recommended that, after 7 years of operation and for each subsequent year of operation, all indirect heat exchangers are removed for a detailed inspection.

During a full inspection, check the following areas.

- Air intake face and dry channels are clear of dirt, debris and calcium build up.
- Glue seams are fully sealed, with no splits greater than 10cm.
- Wet channel air-entry slots are not bridged by calcium build up.

MAINTENANCE INSTRUCTIONS

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SUGGESTED REMEDY
Cooler fails to start/ not running.	Cooler in fault.	Clear active faults. Check PLC fault code log.
	No power to cooler.	Check circuit breaker. Consult with building manager.
	Wall control in 7-day program mode.	Adjust setpoint and/or timer settings. Switch to manual mode to check fan operation.
	Cooler not receiving commands.	Set to PLC control method to W/C, MBS or BMS as required, see Multi-Magic® Control Schemes.
Inadequate cooling.	Cooler running in vent mode.	Turn to cool mode.
	Incorrect wall control temperature setpoint.	Adjust wall control setpoint. Move wall control to more appropriate location.
	DEC stage not operating (Supercool coolers only.)	Check controller humidity setpoint is not too high. Check cooler device type is set correctly (CW-80 or CW-80S)
	Clogged or dirty inlet air filters	Clean or replace air filters.
	Clogged or dirty heat exchanger cores.	Clean or replace cores.
	Water pump failure.	Check all pumps are operating.
	Pumps run but insufficient water in tank.	Clean or replace water probe. Check water management probe position relative to drain valve overflow Check cooler is level.
	Pumps run but no water circulation or heat exchanger cores lack water	Clean pump strainer. Check water distribution system for possible obstruction in hoses. Check for blockages in the spreaders feeding the core assemblies.
	Inadequate exhaust from building.	Make sure there is adequate provision for exhausting air from building (open windows and doors).
	Under-sized ducts.	Carry out cooling load design to determine correct size unit, ducting and outlets required. Discuss with building manager.
Under-sized cooler.		
High ambient humidity.	On days during summer when ambient humidity is high the cooler will not reduce the temperature as much as on drier days. There is no remedy.	
Excessive humidity.	Inadequate exhaust from building.	Make sure there is adequate provision for exhausting air from building (open windows and doors).
	Reduce DEC usage (Supercool coolers only.)	Discuss with building manager Adjust controls program.
Noisy cooler.	Fans out of balance due to dirt, etc.	Clean the fans.
	Air duct noise	Increase size of ducts. Increase size of room registers/grilles
Unpleasant odour.	New heat exchanger cores.	See Commissioning Section for Cooling Core Flush
	Cooler located near source of unpleasant odour.	Remove source of odour or relocate cooler.
	Algae in reservoir water.	Drain reservoir, clean thoroughly with strong cleansing agent, refill.
	Cores remain wet after shutdown.	Run cooler on VENT mode after cooling cycle to dry heat exchanger cores out.
External water leaks.	Loose water hose connections.	Check and tighten connections.
	Blocked or undersized drains.	Check and clean drain lines.
	Excessive amounts of water from drain hose.	Check drain valve seal. Check water management probe position relative to drain valve overflow. Check cooler is level.
Water carryover in supply airstream.	Clogged or dirty heat exchanger cores.	Clean or replace cores.
	New heat exchanger cores.	See Commissioning section for Cooling Core Flush
	Heat exchanger cores not fitted correctly into plenum.	Check for air gaps around water spreaders and between cores.
Water carryover in exhaust airstream.	External static pressure too high.	Increase size of ducts. Increase size of room registers/grilles.
	Indirect water spreaders moved during transport.	Check spreader assemblies securely clamped to top of cores.

WARRANTY TERMS (AUSTRALIA)

HOW TO REGISTER YOUR PRODUCT WARRANTY (Australia only)

Please register your warranty online by visiting seeleyinternational.com

Step 1 - select “**Service**” then “**Product Warranty Registration**”

Step 2 - Enter your product serial number and “**Submit**”

Step 3 - Enter the required information and “**Submit**”

Important Note: You need to have the following information to complete your registration:

- your unit model and size
- serial number
- date your system was installed
- name of the dealer you purchased it from

Please complete this section. You will also need to retain your purchase receipt, and proof of any warranty period extension.

Brand: _____

Model: _____

Serial No: _____

Customer Name: _____

Installation Address: _____

Installation Type: Residential / Non Residential / Commercial

Date of installation: _____

Installer / Dealer: _____

As with any product that has moving parts or is subject to wear and tear, it is **VERY IMPORTANT** that you maintain your Cooler and have it regularly serviced. It is a condition of warranty cover for your Cooler that you comply with all of the maintenance and service requirements set out in the Owner’s / Operation / Service Manual. Compliance with these requirements will prolong the life of your Cooler. Further, it is also a condition of warranty cover that each item in the Maintenance Schedule in the Owner’s / Operation / Service Manual is performed with the frequency indicated, by a qualified, licensed technician, and that the Maintenance Schedule is properly filled out (i.e. names, signature, date, and action taken) when the item is completed.

ANY FAILURE TO CARRY OUT THE REQUIRED MAINTENANCE AND SERVICING REQUIREMENTS, AND ANY FAILURE TO PROPERLY FILL OUT THE MAINTENANCE SCHEDULE, WILL VOID YOUR WARRANTY.

WARRANTY TERMS (AUSTRALIA)

In this warranty:

We or **us** means Seeley International Pty Ltd (Seeley) ABN 23 054 687 035, and our contact details are set out at the end of this warranty;

You means you, the original end-user purchaser of the Goods;

Supplier means the authorised distributor or retailer of the Goods that sold you the Goods in Australia;

Goods means the product, unit, appliance or equipment which was accompanied by this warranty and purchased in Australia; and

Relevant Warranty Period means the various warranty periods as described in clause 1 and clause 3 below, as appropriate.

Our Goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the Goods repaired or replaced if the Goods fail to be of acceptable quality and the failure does not amount to a major failure.

In addition to any rights and remedies that You may have under the Australian Consumer Law or any other law, subject to the terms of this warranty, We provide the following warranty:

1. If during the first one (1) years from the date of purchase, the Goods upon examination prove defective by reason of improper workmanship or material, We will repair or replace, at our option, the Goods or any part thereof without charge for either parts or labour, during normal working hours.
2. The warranty granted under clause 1 applies to all components which form part of the original cooler, but does not cover:
 - a) fair or normal wear and tear;
 - b) damage, loss or claims caused by, resulting from, or arising out of any utilities that service or are connected to the Goods. This includes but it is not limited to electrical surges, and inadequacies, failure, or other problems in or with any electricity, power, or water supply to the Goods;
 - c) after the first year: (i) the replacement, supply, or servicing of consumable items (including without limitation cooler pads, washers, seals, drive belts) and (ii) maintenance adjustments to the cooler; and
 - d) despite clause 2.c. above, air filters;
 - e) installation (including without limitation ductwork, fittings, and other related installation components) which is excluded.
 - f) batteries (including damage caused by leaking or faulty batteries), cracking or breaking of display screens in controllers, physical damage caused by the user or third parties, and accidental breakage.
3. Seeley also warrants the Fan Motor for the first three (3) years from the date of the Goods purchase, if upon examination prove defective by reason of improper workmanship or material, We will repair or replace at our option, the Fan Motor or any part thereof without charge for parts, during normal working hours.
4. During the period to which any expressed warranty applies, all defective part(s) shall be replaced or repaired (at the discretion of Seeley) without charge for either parts or labour, during normal working hours. Should we deem in our absolute discretion to replace the Goods pursuant to clause 1 or clause 3, we may substitute any similar good even if it is not on our current price/equipment list. Further, Goods presented for repair may be replaced by refurbished goods of the same type rather than being repaired. Refurbished parts may be used to repair the Goods.
5. We are under no obligation to repair or replace the Goods or Parts under clause 1 and 3 above if (i) the Goods have not been installed and commissioned in accordance with the Installation Manual (ii) the Goods have not been installed and commissioned properly or competently, (iii) the Goods have not been operated, serviced and maintained in accordance with the instructions provided in the Owner's Manual, or (iv) if any such service or maintenance has not been properly or competently performed. It is a condition of warranty cover that each item in the Maintenance Schedule in the Owner's / Operation / Service Manual (if it was published with such a Schedule) is performed with the frequency indicated, by a qualified, licensed technician, and that the Maintenance Schedule is properly filled out (ie names, signature, date, and action taken) when the item is completed. Any failure to carry out the required maintenance and servicing requirements, and any failure to properly fill out a Maintenance Schedule in the Manual, will void your warranty. The addition of any third party device, (except where it is required by the installation instructions and complies with those instructions), or the removal or alteration of any Seeley component, or damage due to misuse of the unit, or faulty installation or commissioning, will void this warranty.
6. As far as the law permits, We will not be liable for any consequential loss suffered through, or resulting from, the non-operation, or ineffective operation of the cooler. The warranties granted under clause 1 and clause 3 do not cover damage to the cooler or other loss resulting from acts of God.
7. No other person, company or corporation is authorised to offer, or give on our behalf, any other warranty. The benefits conferred are in favour of You and any person deriving title to the cooler whilst in its original place of installation. Nothing in this warranty shall be construed as affecting any rights You may have under all the relevant laws, or Commonwealth or State Legislation which give You rights which cannot be modified or excluded by agreement.
8. In order to claim under the warranties granted under clause 1 or clause 3 You must:
 - a) either:
 - contact us within the Relevant Warranty Period on Australia 1300 650 644; or
 - log a warranty claim on our website (website address below) within the Relevant Warranty Period; and
 - b) make available for inspection by the service agent who will come to the location of the Goods or send to us at the address below within the Relevant Warranty Period: (i) the legible and unmodified original proof of purchase, which clearly indicates the name and address of the original retailer, the date and place of purchase, the product name or other product serial number, (ii) all of your records of all service and maintenance carried out to the Goods, plus the Maintenance Schedule in the Owner's Manual (if it was published with such a Schedule), (iii) a copy of the completed Warranty Information section above, and (iv) if an extended warranty period was provided by Seeley International for the Goods, then the relevant document provided by Seeley International confirming that extended warranty period. If you choose to send the documents described in (i) to (iv) to Seeley International, then they must be accompanied by a covering letter which states your name and address and daytime telephone number, the address at which the Goods are installed, and the model and serial number of the Goods.

WARRANTY TERMS (AUSTRALIA)

9. The warranty granted in clause 1 and clause 3 covers the costs of parts and labour but you will be responsible for:
 - a) the cost of travel incurred for a Seeley International service agent to get to and from the location of the Goods if the location of the Goods is either: (i) outside the metropolitan areas of the capital cities; or (ii) more than 35 kilometres from an authorised Seeley International branch or service representative; and
 - b) any costs for additional labour or equipment associated with gaining acceptable and safe service access to the Goods installed in restricted, high or unsafe locations, and/ or the removal and replacement of any barrier, walls, roofs, fences etc; and
 - c) any costs incurred by the Seeley International service agent in gaining access to the Goods which is necessary to comply with any safety or workplace safety requirements and/or any other relevant regulations. For the avoidance of doubt, the reference to any costs incurred also includes the cost of any necessary site inductions.
10. We are not responsible in any way for any failure and/or inadequate performance of the Goods which arises from or is connected to the use in the Goods of non-genuine spare parts. Seeley International strongly recommends that only spare parts supplied or approved by it are used in the Goods.
11. The employees and Executive of Seeley International are not responsible for the installation of the Goods and expressly disclaim all liability resulting from incorrect installations or installations that do not conform to local electrical codes, local plumbing codes, Occupational Health and Safety requirements, and by laws which are legislated or in effect at the time of installation.
12. This warranty is only valid and enforceable in Australia.

Note: It is important that the safety and privacy of our service technicians is protected at all times. Accordingly, We and our Seeley International service agents reserve the right to refuse service if (i) safety and accessibility to the unit cannot be guaranteed or (ii) the owner of the unit, occupant of the site where the Goods are located, or any other third party seeks to take photographs, or make a video or audio recording, of the service technician(s) while they are on the site or carrying out service to the unit. If a service technician attends the site but subsequently leaves for any of these reasons then a service charge will be made for the call which charge shall be a debt immediately due and payable by the person or entity that has made the claim under this Warranty. If a service call reveals no warranty fault found with the Goods, a charge will be made for the call.

Our liability under this warranty is limited to the extent permitted by law. That is, to the extent that it is fair and reasonable, if the Goods are not of a kind ordinarily acquired for personal, domestic or household use or consumption, your remedies associated with any failure or defect of the Product will be limited to:

- a) the replacement of the Goods or the supply of equivalent goods;
 - b) the repair of the Goods;
 - c) the payment of the cost of replacing the Goods or of acquiring equivalent goods; or
 - d) the payment of the cost of having the Goods repaired
- and subject to the terms and conditions included in this warranty.

SERVICE DEPARTMENT

Seeley International Pty Ltd
112 O'Sullivan Beach Road
Lonsdale, South Australia 5160
Customer Service Centre 08 8328 3844
Website: www.seeleyinternational.com

FOR SERVICE

To book a Service on your Seeley International product:
Visit www.seeleyinternational.com the select **“Support”** and **“Find Agent / Book Service”** then enter the required information.
or Phone Australia 1300 650 644 to be directed to your closest authorised Service Agent.

PRIVACY NOTICE

Seeley International Pty Ltd ABN 23 054 687 035 will use the personal information you provide us with to provide warranty support for the product you have purchased and to inform you about other products and services. If you choose not to supply us with the information requested, we may be unable to provide you with warranty support. We may also disclose your information to third parties, such as related entities; retailers, distributors, service agents and contractors who are affiliated with us; or marketing or market research companies. If you would prefer not to receive direct marketing communications from us, please follow the instructions to “unsubscribe” which will be included in the direct marketing communications we send you, or contact our Privacy Officer using the details set out below. While we do not currently transfer personal information to overseas recipients or store personal information overseas, if we transfer your information to third parties who do so, we will take reasonable steps to ensure that the overseas recipients do not breach the Australian Privacy Principles. By registering your warranty, you consent to having your personal information used in this way. Please read our Privacy Policy on our website www.seeleyinternational.com for further explanation of how we collect, use, hold and disclose personal information, and how you may access and seek correction of your information. It also sets out how you may complain about a breach of the Australian Privacy Principles, and how we will deal with your complaint. You may contact us at: Privacy Officer, Seeley International Pty Ltd, 112 O'Sullivan Beach Road, Lonsdale, South Australia 5160.

WARRANTY TERMS (USA)

In this warranty:

We or **Us** means Convair Cooler Corporation doing business as Seeley International Americas ("SIA"), and our contact details are set out at the end of this warranty;

You and **Purchaser** means the original end-user purchaser of the Goods;

Supplier means the authorized distributor or retailer which sold you the Goods;

Goods means the CW3, CW-H, or CW80 model of the Climate Wizard cooler which was accompanied by this warranty and is intended for industrial and commercial use and not for personal, residential, or household use. There is no warranty on the Goods for personal, residential, or household use; and

Relevant Warranty Period means the warranty period described in "Express Limited Warranty" below.

Do not use cooler cleaners, cooler treatment, or other additives to your cooler. The use of any of these products will void your warranty and may impair the performance of your cooler.

ELIGIBILITY: THE COOLER MUST BE REGISTERED WITHIN 45 DAYS OF INSTALLATION AT:

www.seeleyinternational.com/americaswarranty

SIA SHALL HAVE NO LIABILITY RELATED TO THE CLIMATE WIZARD COOLER OTHER THAN FOR BREACH OF THE EXPRESS WARRANTY STATED HEREIN, AND YOU RELEASE AND DISCHARGE US FROM ALL OTHER CLAIMS, WHETHER IN CONTRACT OR TORT, BY STATUTE OR COMMON LAW, AND YOU FURTHER AGREE TO INDEMNIFY AND HOLD US HARMLESS FROM ALL OTHER CLAIMS (INCLUDING BUT NOT LIMITED TO CLAIMS ALLEGING PRODUCT LIABILITY, STRICT LIABILITY, DECEPTIVE TRADE PRACTICES, BODILY INJURY, AND/OR PROPERTY DAMAGE) TO THE MAXIMUM EXTENT PERMISSIBLE UNDER LAW).

THE EXPRESS WARRANTY PROVIDED HEREIN BY SIA IS THE SOLE AND EXCLUSIVE WARRANTY AND IS IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY DISCLAIMED. EXCEPT FOR THE EXPRESS LIMITED WARRANTIES HEREIN, THE CLIMATE WIZARD COOLER IS SOLD "AS IS, WHERE IS." NO OTHER PERSON OR ENTITY IS AUTHORIZED TO OFFER, OR GIVE YOU, ON OUR BEHALF, ANY OTHER WARRANTY.

EXPRESS LIMITED WARRANTY TERM:

SUBJECT TO THE CONDITIONS AND EXCEPTIONS STATED HEREIN, SIA warrants the CLIMATE WIZARD COOLER sold by SIA as follows:

1. SIA warrants the Cooler cabinet only (base, top, side panels) against corrosion due to normal operation for 1 year.
2. SIA warrants the structural integrity of all plastic components against defects in materials or workmanship for 1 year.
3. SIA warrants, for 1 year, the original factory-installed water pumps, motors, Chlorinator, Water Solenoid, Water Probe, Drain Valve and controls against all defects in material and workmanship.
4. SIA warrants the factory installed cooler pads (cores) against de-lamination due to manufacturing defects for 1 year. REPLACEMENT OF AIR FILTERS AND/OR COOLER PADS DUE TO NORMAL WEAR AND TEAR IS A COMMON MAINTENANCE FUNCTION AND IS NOT COVERED BY THIS WARRANTY.
5. All labor costs incurred for installation, removal, or re-installation are the purchaser's responsibility.
6. All shipping costs for replacement parts are the purchaser's responsibility.

EXPRESS LIMITED WARRANTY COMMENCEMENT:

Warranty coverage begins on the installation date. The installation date is either:

1. The date that the Cooler was originally commissioned (commissioning being the process that occurs on, or shortly after, the Cooler is installed whereby the installer checks the installation of the Cooler, and makes any final adjustments, before hand-over to the purchaser). The date the Cooler was commissioned must be provided to Seeley at the time of warranty registration; or
2. If the date the Cooler was originally commissioned cannot be verified by Seeley, the installation date shall be deemed to be the date on the purchaser's invoice for the purchase of the Cooler.

However, if the Cooler is not installed within 90 days of the date on the purchaser's invoice for the purchase of the Cooler, then the warranty coverage commences on the date that is 90 days from the date on the purchaser's invoice.

THE DATE ON THE PURCHASER'S INVOICE FOR THE PURCHASE OF THE COOLER MUST BE GENUINE. A NON-GENUINE DATE WILL NOT BE ACCEPTED BY SIA.

LIMITED REMEDIES:

THE EXPRESS REMEDIES PROVIDED HEREIN ARE THE SOLE AND EXCLUSIVE REMEDIES FOR ALL CLAIMS RELATED TO THE CLIMATE WIZARD, AND ARE IN LIEU OF ALL OTHER REMEDIES, WHICH ARE HEREBY DISCLAIMED BY SIA AND WAIVED BY YOU TO THE FULLEST EXTENT PERMISSIBLE BY LAW (INCLUDING BUT NOT LIMITED TO WAIVER OF ALL DECEPTIVE TRADE PRACTICES STATUTES).

WARRANTY TERMS (USA)

EXPRESS LIMITED REMEDIES:

SUBJECT TO THE CONDITIONS AND EXCEPTIONS STATED HEREIN, your remedies for any claim related to the CLIMATE WIZARD COOLER are limited to the following:

For breach of the foregoing Express Limited Warranty, if a claim is timely made within the applicable Relevant Warranty Period, **THE SOLE AND EXCLUSIVE REMEDY SHALL BE, AT THE OPTION OF SIA AND AT SIA'S COST, TO REPAIR/ REPLACE THE DEFECTIVE PART, REPLACE THE COOLER, OR REFUND THE PURCHASE PRICE PAID** for the Climate Wizard cooler (any such refund excluding price paid by end-user for delivery, installation, service, repairs and/or maintenance). If SIA elects to replace or repair either parts or coolers, SIA may, in its discretion, use refurbished parts or coolers in making the replacement or repairs, and may, in its discretion, substitute similar SIA authorized parts or coolers instead of the identical warranted part or cooler, even if such parts or coolers are not on its current price/equipment list. You shall have no recourse for breach of the Express Limited Warranty if written notice of claim is not received by SIA within the applicable Relevant Warranty Period, in which case your claim shall be deemed time-barred for all purposes.

EXCLUSIONS FROM EXPRESS LIMITED WARRANTY. The EXPRESS LIMITED WARRANTY excludes coverage for and SIA disclaims (and you hold harmless from and indemnify SIA against) any and all liability to or for:

1. Anyone other than You or any person directly deriving title to the Climate Wizard cooler from You whilst in its original place of installation; (i.e. this Express Limited Warranty is assignable by You only to the person or entity who directly acquires or buys from you your business and/or property, but the assignee has no further right of assignment); and
2. Normal wear and tear; and
3. The cooler's cooling performance, efficiency, water, and electricity consumption, all of which may vary widely depending upon the environment in which the cooler is installed and operates, the area, composition and insulation of the interior structure which it is intended to cool, and how it is used; and
4. Damage, loss or claims caused by, resulting from, or arising out of any utilities, including, but not limited to, electrical surges, and inadequacies, interruptions, failure, or other problems in or with electricity, power, or clean water supply to the cooler; and
5. Damage, loss or claims caused by, resulting from, or arising out of installation, servicing, maintenance, or repair that is not performed in accordance with SIA's written instructions; and
6. The replacement, supply, or servicing of consumable items (including, without limitation, washers, seals, bearings, drive belts, float valves, plumbing components, cooler pads); and
7. Calcification of the cooler pads, since calcification may be affected by minerals in the water supplied to the cooler and in the ambient air; and
8. Installation or re-installation of the cooler (including without limitation related ductwork, fittings, and other installation components) which is the responsibility of your Supplier and/or installer; and
9. Acts of God or nature, e.g., fire, flood, tornado, power outage, lightning, dust storm; or acts of theft or vandalism; or any intentional act which impairs the utility of or damages the cooler; and
10. All costs of labour and travel incurred in connection with repairing or replacing a defective part or the cooler; and
11. Any costs incurred by Us in connection with a warranty claim which We determine is not a valid claim covered by the Express Limited Warranty; and
12. Personal, residential, or household use of the Climate Wizard cooler.

LOSS OF EXPRESS LIMITED WARRANTY:

THE EXPRESS LIMITED WARRANTY SHALL BE NULL AND VOID, ALL LIABILITY FOR BREACH OF SUCH WARRANTIES OR OTHERWISE SHALL BE DEEMED DISCLAIMED, AND YOU SHALL WAIVE ALL RIGHTS AND REMEDIES OF ANY KIND FOR ANY ALLEGED DEFECT IN THE CLIMATE WIZARD COOLER, IF:

1. The Climate Wizard cooler has not been installed and commissioned, in accordance with the instructions in the Owner's Manual, by a qualified, licensed, properly trained technician; OR
2. The Climate Wizard cooler has not been operated by you, and/or serviced and/or maintained by a qualified, licensed technician, in accordance with the instructions provided in the Owner's Manual; OR
3. You fail to maintain and present with any notice of claim the up-to-date Maintenance Schedule (if same is contained in the Owner Manual) showing all work performed on the cooler from installation, the date of each work item, a description of the work performed, and the name, signature and contact details of the qualified, licensed technician who performed the work; OR
4. Any installation, commissioning, service or maintenance has not been properly or competently performed in accordance with applicable electrical, plumbing, building and safety codes and regulations; OR
5. Use of any replacement parts or spare parts not authorized by SIA; OR
6. Addition of any third party device to (except where such addition is required by the installation instructions and complies with those instructions), or the removal, modification, or alteration of, the Climate Wizard cooler or any SIA component thereof; OR
7. The Climate Wizard cooler has been moved from the original place of installation (whether at the same premises or to different premises).

EVEN IF THE EXCLUSIVE CONTRACTUAL REMEDY (OF REPAIR, REPLACEMENT, OR REFUND OF THE PURCHASE PRICE) PROVIDED HEREIN FAILS OF ITS ESSENTIAL PURPOSE, SIA SHALL NOT BE LIABLE TO YOU FOR ANY CONSEQUENTIAL, INCIDENTAL, INDIRECT, PUNITIVE, EXEMPLARY, OR SPECIAL DAMAGES, INCLUDING, WITHOUT LIMITATION, LOST REVENUES, DOWNTIME, LOSS OF USE, SUBSTITUTE EQUIPMENT, GOODWILL, DAMAGE TO OR REPLACEMENT OF YOUR OTHER EQUIPMENT AND PROPERTY. IN NO EVENT SHALL OUR LIABILITY EXCEED THE PURCHASE PRICE PAID FOR THE GOODS.

WARRANTY TERMS (USA)

CONDITIONS TO WARRANTY CLAIM:

Failure to comply with the following conditions shall waive your warranty claim and release and discharge Us from any liability for same.

1. **NOTICE.** In order to make a claim hereunder, **You must send to the original Supplier of the cooler**, or a cooler contractor authorized by Us, or Us, written notice of the claim made, describing the breach claimed with particularity, stating the date you first learned of it, with your name, address and daytime telephone number, the address at which the Goods are installed, and the model and serial number of the Goods, by mail or (if to Us, then you may also do this through our website (see details below)), and the written notice (or claim lodged through our website) must be received within the Relevant Warranty Period:
 - If by mail to Us, then to:
Customer Service Department
Seeley International (Americas)
4430 Glencoe Street
Denver, CO 80216
United States of America; or
 - If to Us through our website, then at:
www.seeleyinternational.com/americaswarranty
2. **PROOF OF PURCHASE AND SERVICE RECORDS.** You shall, in our discretion, within the Relevant Warranty Period, either send to us at the address below, or make available for inspection by the authorized person or company who repairs or replaces the defective part or cooler: (i) the legible and unmodified original proof of purchase, which clearly indicates the name and address of the original retailer, the date and place of purchase, the product name or other product serial number, and show you as the original end-user customer for the Goods, (ii) all of your records of installation, service and maintenance carried out to the Goods, plus the up-to-date Maintenance Schedule (if same exists) in the Owner's Manual, and (iii) your name and contact details.
3. **SAFE ACCESS TO THE GOODS.** You shall provide Us, or the authorized person or company that repairs or replaces the defective part or cooler, safe access to your premises and the specific location on your premises where the Goods are installed so that We and/or that authorized person or company may safely access and inspect the Goods and, if a breach of warranty is confirmed, make repairs or replace parts, whichever remedy We elect in our discretion.

DISPUTE RESOLUTION:

1. **GOVERNING LAW.** This Limited Warranty and all disputes arising from or related to the Climate Wizard cooler sold herewith shall be governed by the Federal Arbitration Act and the laws of the State of Denver, excluding its conflicts of law rules and excluding application of the U.N. Convention on Contracts for the International Sale of Goods.
2. **FORUM.** All disputes arising from or related to this Limited Warranty or the Climate Wizard cooler (including but not limited to the validity of this arbitration clause) shall be exclusively resolved by binding arbitration conducted by an arbitrator pursuant to the Commercial Arbitration Rules of the American Arbitration Association in Denver, Colorado. You waive the right to join your claim with the claims of any other claimants in a class action or other proceeding, to the maximum extent that such waiver is permissible. The courts in Denver, Colorado shall be the exclusive venue for ancillary relief in aid of arbitration, to which venue and jurisdiction all parties consent. The arbitral award shall be final and non-appealable and shall be enforceable in any court of competent jurisdiction. You agree to maintain the confidentiality of and not to disclose the claims made in the arbitration, the evidence submitted therein, or the arbitral award, subject to both parties' rights to entry of judgment upon the award by a court of competent jurisdiction. This arbitration clause shall be binding upon all parties to a claim that relates in any way to this Limited Warranty or the Climate Wizard cooler, including Us, You, the Supplier, and all third parties.
3. **ATTORNEYS' FEES AND COSTS.** The prevailing party in any legal proceeding shall be entitled to recover its/his or her reasonable attorneys' fees and costs (including arbitration fees and costs paid).
4. **BINDING EFFECT.** This Limited Warranty is binding upon and shall inure to the benefit of Convair Cooler Corporation and its parent company, Seeley International Pty Ltd of Australia, which is the manufacturer of the Goods, and which has made a Limited Warranty to SIA that corresponds to this Limited Warranty; and to You and any person directly acquiring title to the Climate Wizard cooler from You whilst in its original place of installation.

MISCELLANEOUS:

1. **Severability.** If any provision hereof is determined to be invalid or unenforceable, the remainder of this Limited Warranty shall continue in full and effect.
2. **Captions.** The captions or headings used for the provisions hereof are used for convenience only and shall not be interpreted to restrict the plain meaning of the provisions themselves.

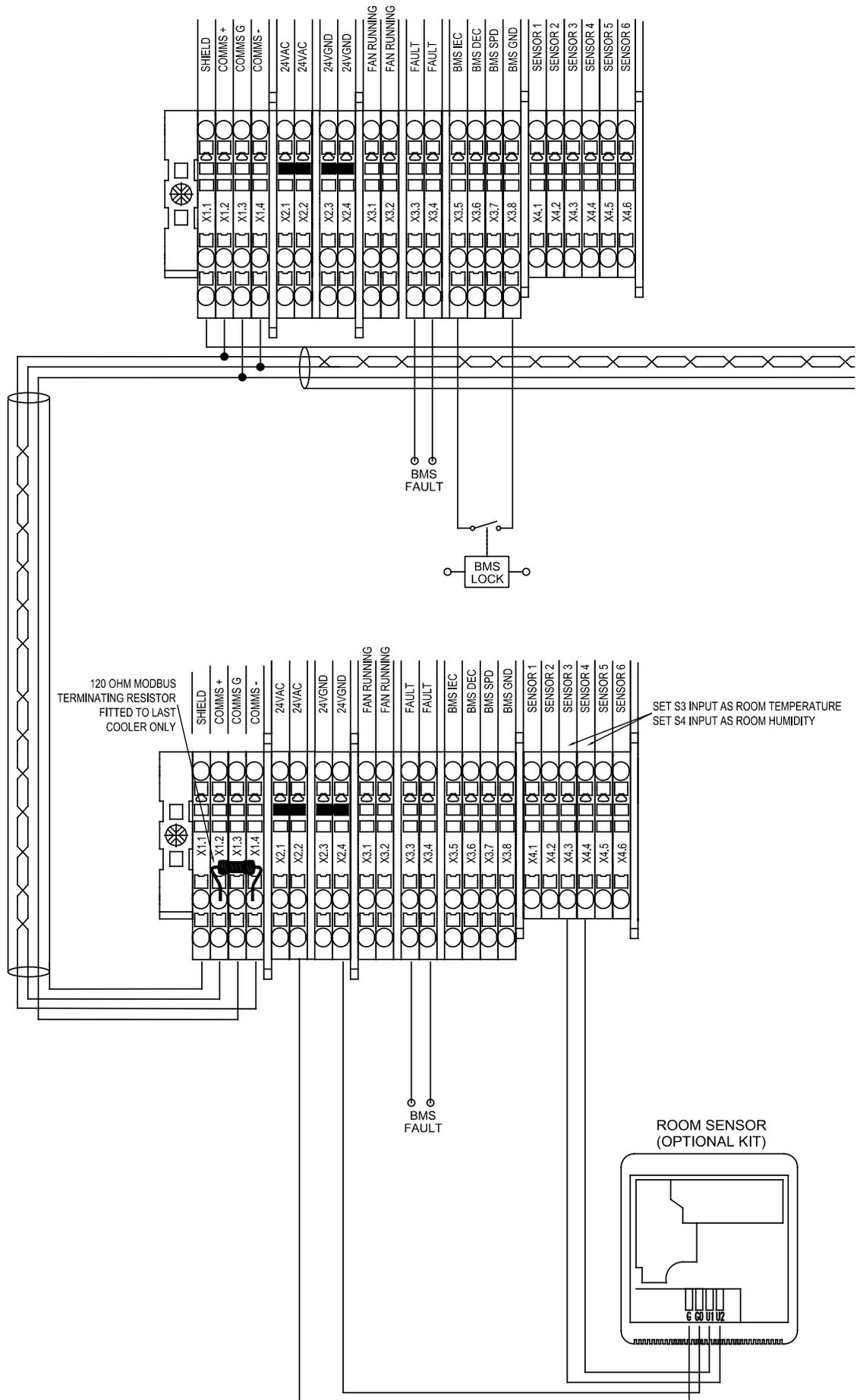
TO CONTACT US:

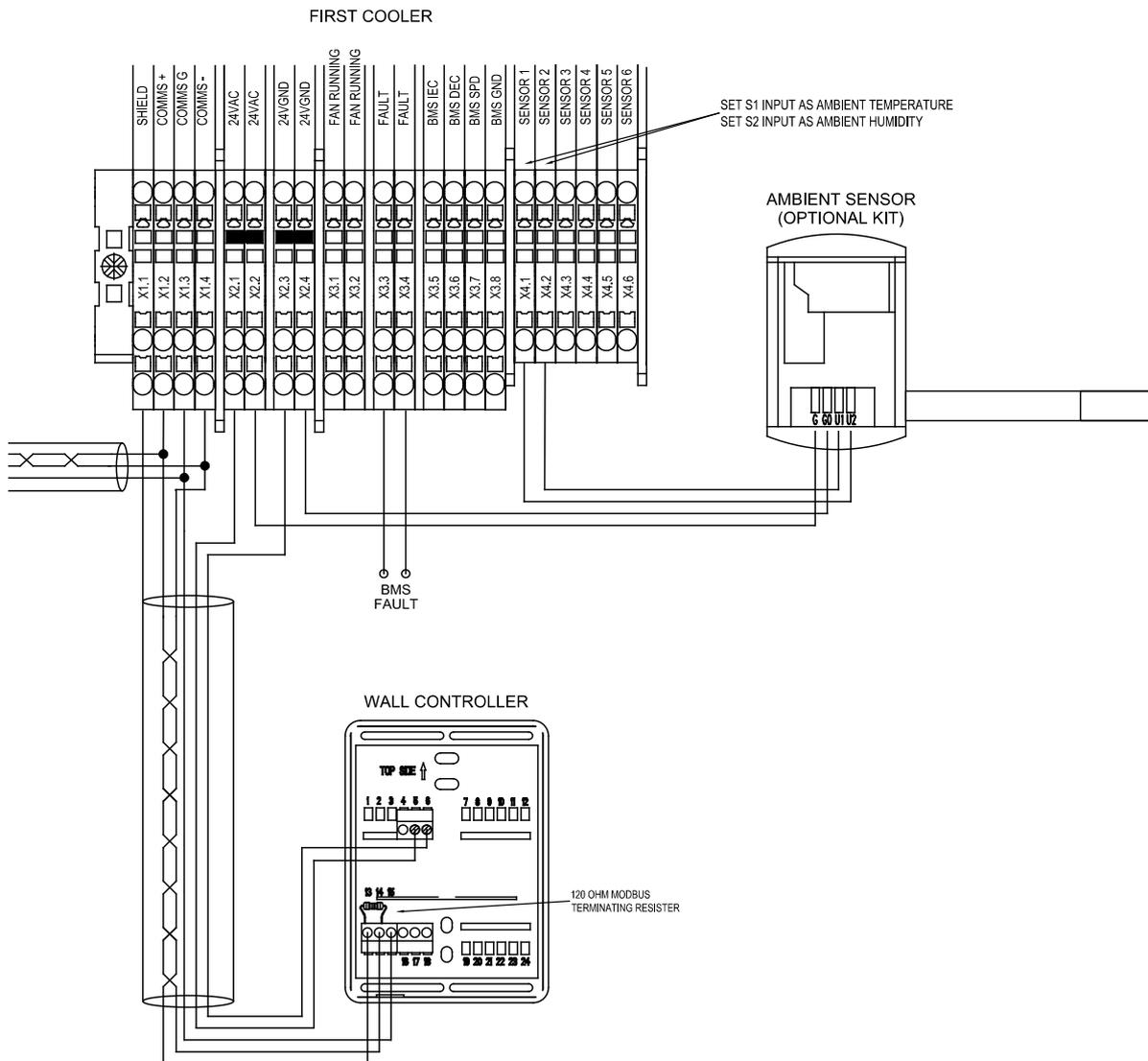
Customer Service Department
Seeley International (Americas)
4430 Glencoe Street
Denver, CO 80216
Tel: +1 (303) 375-0878
www.seeleyinternational.com/americaswarranty

APPENDIX A

EXAMPLE WALL CONTROLLER WIRING

INTERMEDIATE COOLERS





COMMUNICATION CABLE SPECIFICATIONS

- Suitable for RS-485 applications
- Minimum 1 twisted pair (TP) and a third conductor
- Copper conductors
- 0.5 mm² / AWG 20
- Braided shield with drain wire
- Characteristic impedance 120Ω
- Nominal capacity between conductors 89 pF/m
- Nominal capacity between conductors and shielding 161pF/m

RS-485 CABLE WIRING RULES

The following rules must be applied when setting up a RS-485 network:

- Communication wiring must be kept separate from AC power wiring.
- Always route communication cables at least 300mm (12") away from high voltage cables and high-power machines.
- Crossover high power cables at right angles.
- Maximum cable length from Wall Controller / Primary to first cooler is 100m (330ft).
- Maximum cable length between each cooler is 100m (330ft).
- Maximum overall cable length is 1000m (3280ft).
- Coolers must be connected in daisy-chain style, not star or multi-drop..

APPENDIX C

MODBUS REGISTERS

COMMANDS				
REGISTER	TYPE	DESCRIPTION		DETAILS
9200	UINT	Commands	Bit 0	IEC Enable (Indirect Evaporative Cooling)
			Bit 1	DEC Enable (Direct Evaporative Cooling)
			Bit 2	Fault Reset
			Bit 3	Manual Drain
			Bit 4-15	NOT USED
9201	UINT	Supply Fan Speed	0 - 1000	(0 to 100%) * 10 Minimum value of 200 needed to start the fan.
IEC or DEC inputs also require a Fan Speed input to start the watering cycles.				
STATUS				
9205	UINT	Status	Bit 0	FAULT
			Bit 1	Low Probe WET
			Bit 2	High Probe WET
			Bit 3	Inlet Solenoid OPEN
			Bit 4	Drain Valve OPEN
			Bit 5	Indirect Pump RUNNING
			Bit 6	Direct Pump RUNNING
			Bit 7	Chlorinator RUNNING
9206	UINT	Supply Fan Speed	0 - 100	0 – 100%
9207	UINT	Salinity of Tank	0 - 6615	Water Salinity Level (uS/cm)
9209	UINT	Fault Code		Fault Code. If multiple faults are present, the fault codes will cycle.
9210	INT	Sensor Input 1 Value		Sensor Values depend on sensor type Temperature °C /10 or °F/10 Relative Humidity %/10 Pressure Pa or inwg/100
9211	INT	Sensor Input 2 Value		
9212	INT	Sensor Input 3 Value		
9213	INT	Sensor Input 4 Value		
9214	INT	Sensor Input 5 Value		
9215	INT	Sensor Input 6 Value		
9216	UNIT	Exhaust Fan Speed	0 - 100	0 to 100%

BACNET OBJECT LIST

CONTROL		
Object Name	Object Type & Identifier	Details
BCN_CMD_IEC	Binary-value 0	IEC Enable (Indirect Evaporative Cooling)
BCN_CMD_DEC	Binary-value 1	DEC Enable (Direct Evaporative Cooling)
BCN_CMD_Spd	Analogue-value 0	0 to 10 Fan Speed
BCN_CMD_Drain	Binary-value 2	Manual Drain
BCN_CMD_ON_OFF	Binary-value 14	Cooler Run
BCN_CMD_FaultReset	Binary-value 4	Reset Fault Codes
RTCYear	Analogue-value 1	Range 00 to 99
RTCMonth	Analogue-value 2	Range 1 to 12
RTCDay	Analogue-value 3	Range 1 to 31
RTCHour	Analogue-value 4	Range 0 to 23
RTCMinute	Analogue-value 5	Range 0 to 59
RTCSecond	Analogue-value 6	Range 0 to 59
RTCDay Of Week	Analogue-value 7	Range 0 to 6 (0 = Sunday)
BCN_CMD_RTCSet	Binary-value 3	Set Time & Date

IEC or DEC inputs also require a Fan Speed input to run.

RTC analogue values can only be adjusted whilst "RTCSet" is active.

MONITORING		
Object Name	Object Type & Identifier	Details
STSIEC	Binary-value 5	IEC Pumps RUNNING
STSDEC	Binary-value 6	DEC Pumps RUNNING
STSERROR	Binary-value 7	Fault
STSLowProbe	Binary-value 8	Low Probe WET
STSHighProbe	Binary-value 9	High Prbe WET
STSSolenoid	Binary-value 10	Inlet Solenoid OPEN
STSDrain	Binary-value 11	Drain Valve OPEN
STSchlorinator	Binary-value 12	Chlorinator RUNNING
STSSupplyFSpd	Analogue-input 8	Supply Fan Speed Range 0 to 10
STSSalinity	Analogue-input 9	Water Salinity Level (uS/cm)
STSchIPWM	Analogue-input 10	Chlorinator PWM % (CW-H only)
STSFaultCode	Analogue-input 11	Fault Code. If multiple faults are present, the fault codes will cycle.
STSExhaustFSpd	Analogue-input 12	Exhaust fan speed (Vdc) (CW-80 only)
STSSensor1	Analogue-input 13	Sensor Values depend on sensor type Ambient Sensor Temperature -40 to 70°C or -40 to 158°F Ambient Sensor Relative Humidity 0 to 100 % Room Sensor Temperature 0 to 100°C or 32 to 212°F Room Sensor Relative Humidity 0 to 100 % Duct Sensor Temperature 0 to 100°C or 32 to 212°F Duct Sensor Relative Humidity 0 to 100 % Pressure Sensor 0 to 500Pa or 0 to 2.00 inwg
STSSensor2	Analogue-input 14	
STSSensor3	Analogue-input 15	
STSSensor4	Analogue-input 16	
STSSensor5	Analogue-input 17	
STSSensor6	Analogue-input 18	

Metric or Imperial units are dependent upon the units selected on the Multi-Magic® PLC Settings page.



Warranty Service

Australia: 1300 650 644

New Zealand: 0800 589 151

Seeley International Technical Support

Australia: 1300 650 399

New Zealand: 0800 589 152

For all other regions, contact your local distributor:

seeleyinternational.com

Online Support Portal (AUS/NZ)

Scan or Click QR Code



It is the policy of Seeley International to introduce continuous product improvement.

Accordingly, specifications are subject to change without notice.

Please consult with your dealer to confirm the specifications of the model selected.