OXYGEN8

Commercial Air Handler General Safety

Installation, Operation, and Maintenance

TABLE OF CONTENTS

135000-001

1.0 GENERAL INFORMATION

This manual includes important instructions for safe connection of the Oxygen8 unit, along with any other manuals provided with the unit.

Before connecting the unit, please read all manuals provided carefully and follow the instructions.

Hazard Identification Information

This manual includes warning or caution messages with the following format to draw specific attention to safety hazards that must be reviewed prior to handling or servicing the product. Please ensure these are followed.

The manufacturer reserves the right to make changes, including changes in the technical documentation, without previous notification. Please keep this manual for future reference. Consider this manual a permanent part of the product.

This manual will show the manufacturers' recommended installation method. Please note that local codes and regulations may override these recommendations. The installation must follow local codes and standards.

The National Electric Code (NEC), the National Fire Protection Agency (NFPA), and the Canadian Electrical Code (CEC) must be followed. Installation of this product must be performed by a qualified and accredited professional in conformance with local and national codes, standards and licensing requirements.

Caution: This sign indicates apotentially hazardous situation, which may result in minor or moderate injury if not avoided. It may also alert against unsafe practices.

Warning: This sign indicates a situation that may result in equipment or property damage accidents.

Danger: This sign indicates a potentially hazardous situation, which could result in death or serious injury if not avoided.

Unit Nameplate

The unit nameplate is located outside of the main control box door. It includes the unit model number, serial number, electrical characteristics, and refrigerant charge.

Compliance Statements

This unit is considered an APPLIANCE NOT ACCESSIBLE TO THE GENERAL PUBLIC and shall be installed in a secured location with restricted access or in secured rooftop areas. Appliances located at a level not less than 2.5 m shall additionally be located in a secured location or in secured rooftop areas. Children should be supervised to ensure that they do not play with the appliance. 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. The unit will come with a Non-Fused Disconnect and often a power block in cases where multiple sources of power are specified. Consult the Unit-Specific Electrical Schematics to determine the number of required sources of power.

Unit Safety Labels

Potential safety hazards are alerted using the following symbols. The symbol is used in conjunction with terms that indicate the intensity of the hazard. It is the responsibility of the owner and the installer to read and comply with the safety information and the instructions accompanying these symbols.

	Service indicator; read technical manual for service instructions carefully before servicing the unit.
	Operator's manual; Read the precautions in the technical manual carefully before operating the unit.
	Read the instructions in the technical manual carefully before operating the unit
	Pressurized medium present.
	Ultraviolet (UV) radiation present.

2.0 SAFETY INFORMATION

2.1 General Safety Information

The appliance is designed to operate at ambient temperatures between -40°C to +40°C. Exposure to any ambient temperatures outside this range may result in failure of components and safety hazard risk.

Warning: Before obtaining access to terminals, all supply circuits must be disconnected.

Danger: RISK OF ELECTRIC SHOCK. CAN CAUSE INJURY OR DEATH: System contains oversize protective earthing (grounding) terminal which shall be properly connected

1. The appliance shall be installed in accordance with national wiring regulations.

2. This appliance incorporates an earth connection for functional purposes only.

3. The dimensions of the space necessary for correct installation of the appliance including the minimum permissible distances to adjacent structures is provided in each product IOM separate from this manual, also provided with the unit, and must be reviewed prior to installation.

4. For air handlers with supplementary heaters that are not intended to be coupled to or integrated with the appliance, the minimum clearance from the appliance to combustible surfaces is generally 3x the duct diameter. Consult the heater manufacturer installation instructions prior to installing in the ductwork.

5. A wiring diagram with clear indication of the connections to external control devices and supply cord can be found on the back of the main electrical enclosure of the each unit.

6. The appliance was tested for a range of external static pressures (ESP) that varies based on specific configuration of modules and voltage. Please refer to individual product IOMs for this information.

7. The method of connecting the appliance to the electrical supply and interconnection of separate components is detailed on the wiring diagram inside the motor control circuit electrical enclosure.

8. Some Oxygen8 units are designed for outdoor installations. Only those designated on the nameplate are allowed to be installed outdoors. For connected accessories, only those designated for outdoor installations, complete with standing-seam roof panels, can be installed outdoors. Follow the installation instructions closely to mitigate risk of fluid and thermal ingress. Ensure all duct connections to these appliances are suitable for outdoor environments.

9. Details of type and rating of fuses, or rating of circuit breakers, can be found the product-specific IOM also provided with the unit.

10. Use only certified duct heaters as supplementary heating elements used in conjunction with the appliance. For supplementary heating elements fitted to the appliance directly, use only components supplied directly by Oxygen8 that are factory-installed in an accessory cabinet or base unit module. Follow mounting guidelines found in the unit-specific IOM for heating elements supplied in casing.

2.2 Inspection

Upon receiving the unit, carefully examine it for any significant damage that may have occurred during shipping. Any shipping-related damages are the responsibility of the carrier. Also, check

the product labels to confirm that the model number and features match your order. The manufacturer will not process claims for damages resulting from incorrectly shipped products

2.3 General Information and Installation Preparation

Read all the instructions in this guideline carefully while paying special attention to the WARNING and CAUTION alerts. If any of the instructions are unclear; clarify with certified technicians. Gather all the tools needed for successful installation of the unit prior to beginning the installation.

Warning: Disconnect ALL power before servicing or installing this air handler. Multiple power sources may be present. Failure to do so may cause property damage, personal injury, or death

2.4 Qualification of Workers

Only technicians who have completed training through national training organizations or manufacturers accredited to deliver relevant national competency standards—when required by legislation—are authorized to work on this equipment. Proof of competence must be provided with a certificate. For air handlers with VRV, refer to the Daikin outdoor unit manual for any specific requirements technicians installing or servicing VRV systems.

Note: Servicing of the unit shall be performed only as recommended by Oxygen8.

2.5 Electrical Modifications

Warning: Electrical enclosures are rated IP54 or greater (with possible exception of units that do not contain A2L refrigerants). Field additions of penetrations and cable glands must be done in a way that doesn't compromise the IP rating. Wires must be paired with cable gland fittings to ensure at least IP54 seal throughout. Field adjustments that compromise the integrity of this rating may result in flammability risk by exposing potential ignition sources.

When installing additional penetrations in electrical series enclosures, consider the following best practices:

- Use Appropriate Cable Glands: Select cable glands that match the enclosure's IP rating. Ensure they are installed correctly to prevent compromising the enclosure's integrity.
- Seal Unused Openings: Any unused openings should be sealed with appropriate plugs or covers that maintain the enclosure's IP rating.

Some units may have pre-cut 1/8" pilot holes in the panels adjacent to the electrical enclosure access door that may be used to field modify units to allow cable penetrations to access cable glands of the electrical enclosure internal to the unit.

2.6 Hydronic Coils

Hydronic coils are rated to have water or brine operating temperatures with a maximum 180°F and minimum 40°F; Hydronic coils are rated to have water or brine operating pressures with a maximum 300 psig. to avoid air binding and to ensure proper system performance, the hydronic system shall be filled and charged such that a minimum positive static pressure of 3–5 psig exists at the highest point in the coil loop when cold.

Warning: For units with coils, all coils are factory charged with dry nitrogen. Release the pressure through the valve test port prior to installation. If holding pressure is not present, return coil module to Oxygen8 for corrective measures.

2.6.1 Water Quality

For proper operation and to ensure the longevity of the hydronic coil, the circulating water shall meet the following quality requirements:

- **pH:** 7.0 – 9.0 (typical range for closed-loop HVAC water systems)
- **Hardness:** < 300 ppm (as $CaCO_3$ equivalent) to minimize scaling
- **Chlorides:** < 50 ppm to prevent corrosion of copper or stainless steel components
- **Conductivity**: < 500 µS/cm (for closed loops; consult water treatment specialist if higher)
- **Treatment:** Water shall be treated with a corrosion inhibitor and biocide appropriate for HVAC closed-loop hydronic systems.

2.6.2 Potable Water Source Protection

If the coil water supply is connected directly to a potable water system (for example, during initial filling or makeup water connection), the potable water supply must be protected against back siphonage from the equipment. This shall be accomplished by installing a suitable backflow prevention device (e.g., double check valve assembly or reduced pressure zone device) in accordance with local plumbing codes and regulations.

Note: The hydronic coil and associated piping are designed for closed-loop systems only. Continuous connection to potable water sources is not recommended without approved backflow protection and water treatment measures.

2.7 Damper Installation

For units with shut-off damper(s), dampers ship loose but wired with quick connects. Dampers must be attached on-site after all modules are connected. Ensure the damper actuator faces the front of the unit and is centered on the opening.

Dampers are not factory installed, sometimes to provide access to frame coupling corner brackets during installation. If the dampers happen to be factory-mounted, they may need to be removed and re-attached to allow for coupling of the unit modules.

2.8 General Work Area

All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided.

2.9 Checks to Electrical Devices

Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.

Initial safety checks shall include:

- That capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
- That no live electrical components and wiring are exposed while charging, recovering or purging the system;
- That there is continuity of earth bonding.

2.10 Repairs to Sealed Components

Sealed electrical components shall be replaced if they are not functioning correctly or as specified. Do not attempt to repair sealed components on site.

2.11 Repair to Intrinsically Safe Components

Intrinsically safe components must be replaced if they are not functioning correctly or as specified. Do not attempt to repair intrinsically safe components on site. One example of an intrinsically safe component is a refrigerant detection system leak sensor.

2.12 Cabling

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

2.13 Fan Maintenance

The fan or motor is maintenance-free due to the use of ball bearings with “lifetime lubrication”. Once the grease operating life F10h has been reached, it may be necessary to replace the bearing. The bearing service life expectation may change compared to the specified value, if operating conditions such as increased vibrations or shocks, increased or too low temperatures, humidity, dirt in the ball bearing or unfavorable control modes are present. A service life calculation for special applications can be provided on request.

Warning:
During all work on fan in the hazardous area:

Maintenance operation is only to be performed by trained service personnel.

Observe the safety and labor regulations (DIN EN 50110, IEC 364).

No maintenance work on running fan!

Open the electrical circuit and secure against being switched back on.

Verify the absence of voltage.

The rotor must be standing still!

Always wear the appropriate PPE (safety shoes and gloves for handling).

Regular inspection, if necessary with cleaning, is required to prevent imbalance due to ingestion of particles.

Danger:
Clean the fan’s flow area:

Wet cleaning under voltage may lead to an electric shock - danger to life!

Do not use any aggressive, paint solventcleaning agents when cleaning.

Never use a high-pressure cleaner or spray jet to clean.

Avoid letting water permeate into the motor and the electrical installation.

After cleaning, the motor must be operated for 30 minutes at 80-100% of the max. rpm to let it dry out. This will allow any possibly penetrated water to evaporate.

Ball-bearings service life F10h

2.14 DX Coil Maintenance

Air Distribution

- Uniform air flow is crucial to coil performance and should not vary significantly across the coil face
- Air velocities should be maintained between 200 and 550 feet per minute without a mist eliminator and between 200 and 700 feet per minute with a mist eliminator
- The drain pan should be designed and installed such that there is no standing water
- The maximum operating fluid temperature is 350°F for any coil.

Cleaning

- Coils must be cleaned periodically to obtain maximum performance. Soiled fins reduce the capacity of the coil, and demand more energy from the fan.
- Periodic inspection of the coil for signs of damage, leaks or corrosion is also recommended. Any repair or replacement of parts should be performed by a qualified professional.
- Any fluid passing through the coil should be free of any sort of contaminants. Periodic testing and correction will enable the coil to last longer.
- Fins can be cleaned using spray washers or using commercial cleaners. Care must be taken not to damage the coils and to not allow water to touch any electrical equipment. However, caution should be exercised when working with the fins as the sharp edges can cause serious personal injury.

Note: When the coil surface itself needs cleaning, ensure an appropriate solution and equipment are selected to avoid damage to the coil and/or enabling any health hazards. Cleaning should be done inwards from the air-flow exit so any contaminant will later be pushed out of the coil. Follow the manufacturer's instructions with any cleaning solution or equipment

2.15 Hydronic Coil Maintenance

First Use Recommendation

- The air vent (at the uppermost point on the assembly) should be opened during set-up to exhaust any air from the coil. To maintain heat transfer capacity, periodically vent the air in the coil.

Air Distribution

- Uniform air flow is crucial to coil performance and should not vary significantly across the coil face
- The drain pan and its piping should be arranged such that there is not still water in the pan to be blown by the passing flow of air
- The fluid and air velocity should be kept to near the specifications for the coil
- The maximum operating fluid temperature is 180°F for any hot water hydronic coil.

Winterizing Coils

- During the winter, if the coil is not in use all water should be drained from the coil. The coil should then be thoroughly flushed with a glycol solution.

Cleaning

- Coils must be cleaned periodically to obtainmaximum performance. Soiled fins reduce the capacity of the coil, and demand more energy from the fan
- Periodic inspection of the coil for signs of damage, leaks or corrosion is also recommended. Any repair or replacement of parts should be performed by a qualified professional.
- Any fluid passing through the coil should be free of any sort of contaminants. Periodic testing and correction will enable the coil to last longer.
- Fins can be cleaned using spray washers or using commercial cleaners. Care must be taken not to damage the coils and to not allow water to touch any electrical equipment. However, caution should be exercised when working with the fins as the sharp edges can cause serious personal injury.
- When the coil surface itself needs cleaning, ensure an appropriate solution and equipment are selected to avoid damage to the coil and/or enabling any health hazards. Cleaning should be done inwards from the airflow exit so any contaminants will later be pushed out of the coil. Follow the manufacturer's instructions with any cleaning solution or equipment
- Drain-pans in any air conditioning unit contain moisture and must be cleaned regularly

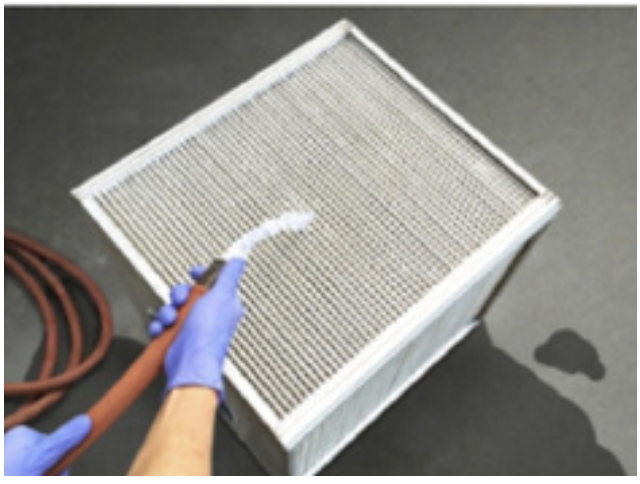
2.16 Recovery Core Cleaning

We recommend vacuuming the face of the exchanger and blowing it out with low pressure air at least once per year.

We also recommend washing our exchanger at least once every five years, using tap water. If the exchanger becomes heavily soiled, a mild detergent such as Dawn®, Palmolive® or equivalent dish soap may be used. While cleaning other adjacent components in the HVAC system, it is possible for our exchanger to come in contact with harsher detergents.

The table below is a list of coil cleaners and all-purpose cleaners that have been tested with our exchangers and their compatibility. Generally, contact with any coil cleaning product is not recommended and specifically hydroxide-based cleaners should be avoided. If contact does occur, our exchanger should be rinsed immediately asit may void the warranty.

Cleaner	Recommendation
VIPER EXPANDING FOAM	OK
CALSPRAY-NU-BRITE	AVOID CONTACT
CALSPRAY-EVAP FOAM	OK
HD CALCLEAN 1:40	OK
HD CALCLEAN 1:5	AVOID CONTACT
FANTASTIK W/ BLEACH	AVOID CONTACT
FANTASTIK ORIGINAL	AVOID CONTACT



Core Cleaning Instructions

1. Obtain access to a source of regular tap water. Do not use a high-pressure water source (pressure washer).

2. Remove our exchanger from the system if possible, to facilitate access to all exchanger faces, otherwise wash in place. Ensure adequate drainage is available for waste water.

3. ONLY if the exchanger is heavily soiled, prepare a solution of less than 1:100 parts water to dish soap. Otherwise, clean water is sufficient.

4. Orient the plates vertically for drainage and pour solution (or clean water) through our exchanger, both supply and exhaust paths, ensuring exposure of all layers.

5. Thoroughly rinse with clean tap water if a soapy solution was used until no more bubbles appear in the exiting water.

6. Allow our exchanger to dry (with plates still oriented vertically) until there is no more water\dripping out, then return to service. Cleaner Recommendation

Note: Crossflow core shown; unit may utilize counterflow cores instead, but same maintenance rules apply.

Oxygen8 Solutions Inc. Standard Limited Warranty

DOAS Systems

Product Type:	DOAS Systems	**Unit Location:**	
Contract No.:	0679	**Project Name:**	École Mountainview
Unit Model Number:	H10IN-BP	**Installation Address:**	444, RUE MOUNTAINVIE
Unit Serial Number:	910004560944	**Startup Date:**	
Unit Tag ID:	VRC-1	**Shipping Date:**	

Limited Warranty

Subject to the terms, conditions, exclusions, and other limitations set forth in the Standard Terms and Conditions, when properly endorsed, this protection plan between Oxygen8 Solutions, Inc. ("Seller") and the undersigned Customer ("Buyer") warrants that each new Direct Outdoor Air System ("DOAS") manufactured by the Seller and materials, or installation, or start-up services performed by Oxygen8 Solutions in connection therewith, are free from defects in material and workmanship for twenty-four (24) months from the date of shipment from Seller's facility.

The ERV core found in the Nova units will come with a sixty (60) month warranty from date of shipment.

The H/ERV cores found in the Ventum units will come with a twenty-four (24) month warranty from date of shipment.

THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES AND LIABILITIES, EXPRESS OR IMPLIED IN LAW OR IN FACT, INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE WARRANTIES CONTAINED HEREIN SET FORTH BUYER'S SOLE AND EXCLUSIVE REMEDY IN THE EVENT OF A DEFECT IN WORKMANSHIP OR MATERIALS. IN NO EVENT SHALL OXYGEN8 SOLUTIONS' LIABILITY FOR DIRECT OR COMPENSATORY DAMAGES EXCEED THE PAYMENTS RECEIVED BY OXYGEN8 SOLUTIONS FROM BUYER FOR THE MATERIALS OR EQUIPMENT INVOLVED. NOR SHALL OXYGEN8 SOLUTIONS BE LIABLE FOR ANY SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES. THESE LIMITATIONS ON LIABILITY AND DAMAGES SHALL APPLY UNDER ALL THEORIES OF LIABILITY OR CAUSES OF ACTION, INCLUDING, BUT NOT LIMITED TO, CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE) OR STRICT LIABILITY. THE ABOVE LIMITATIONS SHALL INURE TO THE BENEFIT OF OXYGEN8 SOLUTIONS' SUPPLIERS AND SUBCONTRACTORS.

Notification of defect and any warranty claim must be made in writing, with a brief written description of the problem to Buyer's local sales/service office. Nothing herein is intended to provide warranty coverage to lessees or anyone other than Buyer and no third-parties are intended to be beneficiaries of this warranty. Seller does not take responsibility for any changes in sequence of operation by Buyer, that may cause physical damage to the unit.

BRANCH SERVICE OFFICE:

OFFERED BY: _____ _____
Oxygen8 Selling Representative Print/Sign — Date

APPROVED BY: Matthew Doherty _____ _____
Oxygen8 Signing Officer or other authorized individual Print/Sign — Date

ACCEPTED BY: _____ _____
Customer Signature — Date

OXYGEN8

Title			
RMA Request Form			
Doc. Number 028-FRM-001	Effective date 07/01/2020	Prepared/Signature Petr Mikula	Date 06/20/2020

Company / Contact Name	
Ship-back address	
Oxygen8 serial number on the unit	
Purchase Order #	
Reason for return / Repair	
Application:	Indoor / Outdoor
Power supply:	single-phase / 3-phase
Field failure:	Yes / No
Repair request	Yes / No
Damaged in transit?	No / Yes If yes, please attach BOL (Bill of Landing)

Send us picture attachments:

1) Unit Label
2) Damage / Issue from distance
3) Damage / Issue detail

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