OXYGON

SWIMMING POOL · WATER TREATMENT · HEATING · COOLING

SUN Series

Inverter Pool Heat Pump

Installation, Operation & Maintenance Manual

Model code: OX-15BA1 · OX-18BA1 · OX-25BA1 · OX-35BA1

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1. Safety Warnings

Read the following instructions carefully before installing, operating or servicing the heat pump. They contain important information for the safety of the operator and the equipment.

ELECTRICAL HAZARD

Do not touch the unit with wet hands or feet. Always disconnect the power supply before any maintenance or repair work. The appliance must be connected to a correctly rated circuit breaker and a 30 mA residual-current device.

REFRIGERANT R32 — FLAMMABLE

This unit contains R32 refrigerant (mildly flammable, A2L). Keep away from open flames and ignition sources. Servicing of the refrigerant circuit must be performed only by a certified refrigeration technician. Do not pierce or heat any part of the refrigerant circuit.

WATER & MECHANICAL HAZARD

Ensure the water circuit is correctly connected and leak-free before start-up. Never operate the unit without adequate water flow. Rotating fan blades can cause injury — keep hands and objects away from the air outlet during operation.

GROUNDING

The unit must be reliably earthed. Verify that the grounding conductor is continuous and correctly connected. Never bypass or disconnect the earth connection.

Note: This heat pump carries the CE marking. It has been tested and found to conform to EN 60335-1, EN 60335-2-40 and EN 62233 under the Low Voltage Directive 2014/35/EU, and under the EMC Directive 2014/30/EU to EN IEC 55014-1, EN IEC 55014-2, EN IEC 61000-3-2 and EN 61000-3-3 (OX-15BA1, OX-18BA1, OX-25BA1) or EN IEC 61000-6-1 and EN IEC 61000-6-3 (OX-35BA1). It also complies with the RoHS Directive 2011/65/EU. For warranty terms, see the Warranty & Contact section at the end of this manual.

2. Package Contents

The package contains the following items:

- SUN Series heat-pump unit
- Wired LCD controller with cable
- Water-connection fittings (Ø50)
- Mounting / anti-vibration feet
- User & installation manual
- Warranty card

3. Product Description

Oxygon SUN Series — 15 / 18 / 25 / 35 kW

The Oxygon SUN Series is a full-inverter air-to-water pool heat pump designed for efficient, year-round pool water heating and cooling. Its DC-inverter compressor continuously modulates output to match demand, delivering high COP values and quiet operation.

Key features:

- R32 refrigerant — high efficiency, lower environmental impact
- Titanium heat exchanger / condenser — resistant to salt and chlorine
- Mitsubishi DC-inverter compressor for continuous modulation
- Full-inverter operation with high COP (up to 15.8)
- Heating and cooling with reverse-cycle defrost
- Reliable operation down to -15°C ambient
- Automatic defrost via 4-way valve
- Integrated Wi-Fi — control via the Smart Life app
- LCD wired controller with intuitive icons

4. Technical Specifications

The table below compares the four models of the SUN Series. All values are taken from the manufacturer's technical specification.

Characteristic	15 kW	18 kW	25 kW	35 kW
Heating capacity — Air 26 °C / Water 26 °C (kW)	3.8 – 15.0	4.8 – 18.0	6.8 – 25.0	8.8 – 35.0
Power input, heating — Air 26 °C (kW)	0.24 – 2.50	0.30 – 3.09	0.43 – 4.12	0.56 – 5.15
COP — Air 26 °C / Water 26 °C	6.8 – 15.8	6.8 – 15.8	6.8 – 15.8	6.8 – 15.8
Heating capacity — Air 15 °C / Water 26 °C (kW)	3.0 – 12.5	3.8 – 16.5	5.5 – 22.0	6.4 – 25.5
Power input, heating — Air 15 °C (kW)	0.39 – 2.76	0.50 – 3.37	0.72 – 4.70	0.84 – 5.20
COP — Air 15 °C	4.9 – 7.6	4.9 – 7.6	4.9 – 7.6	4.9 – 7.6
Cooling capacity — Air 35 °C / Water 29 °C (kW)	2.1 – 9.4	2.7 – 11.6	3.8 – 14.9	4.9 – 19.3
Power input, cooling (kW)	0.31 – 2.47	0.40 – 3.05	0.57 – 3.92	0.73 – 5.08
EER — Air 35 °C	3.8 – 6.7	3.8 – 6.7	3.8 – 6.7	3.8 – 6.7
Power supply	220–240V~ / 50Hz	220–240V~ / 50Hz	220–240V~ / 50Hz	380–415V / 3N~ / 50Hz
Max. power input (kW)	3.15	3.75	5.17	7.25
Max. current (A)	14.5	17.5	24.5	12.8
Water flow volume (m³/h)	5.5	6.5	11	15
Noise level at 1 m — dB(A)	43 – 55	45 – 56	47 – 58	49 – 59
Noise level at 10 m — dB(A)	23 – 35	25 – 36	27 – 38	29 – 39
Net weight (kg)	54	58	69	81
Gross weight (kg)	65	69	84	94
Net dimensions L×W×H (mm)	920×380×650	920×380×650	1092×445×742	1092×445×742
Package dimensions L×W×H (mm)	990×400×761	990×400×761	1150×460×862	1150×460×862

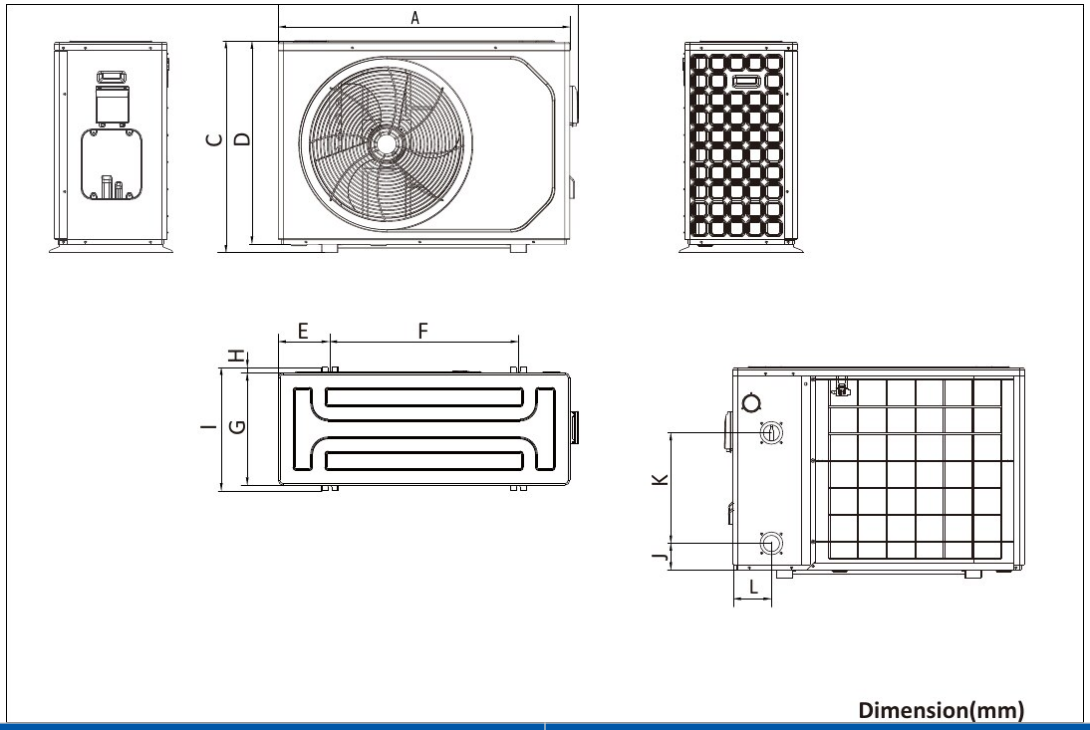
Characteristics common to all four models

Refrigerant	R32
Heat exchanger	Titanium
Compressor	Mitsubishi, DC inverter
Air flow direction	Horizontal
Defrost	By 4-way valve, automatic
Operating ambient temperature	−15 °C to +43 °C
Casing material	Sheet metal
Ingress protection	IPX4
Water connection	DN50

5. Dimensions

The SUN Series uses two housings: one shared by the 15 kW and 18 kW models, and one shared by the 25 kW and 35 kW models. Refer to the drawing and table that correspond to your model.

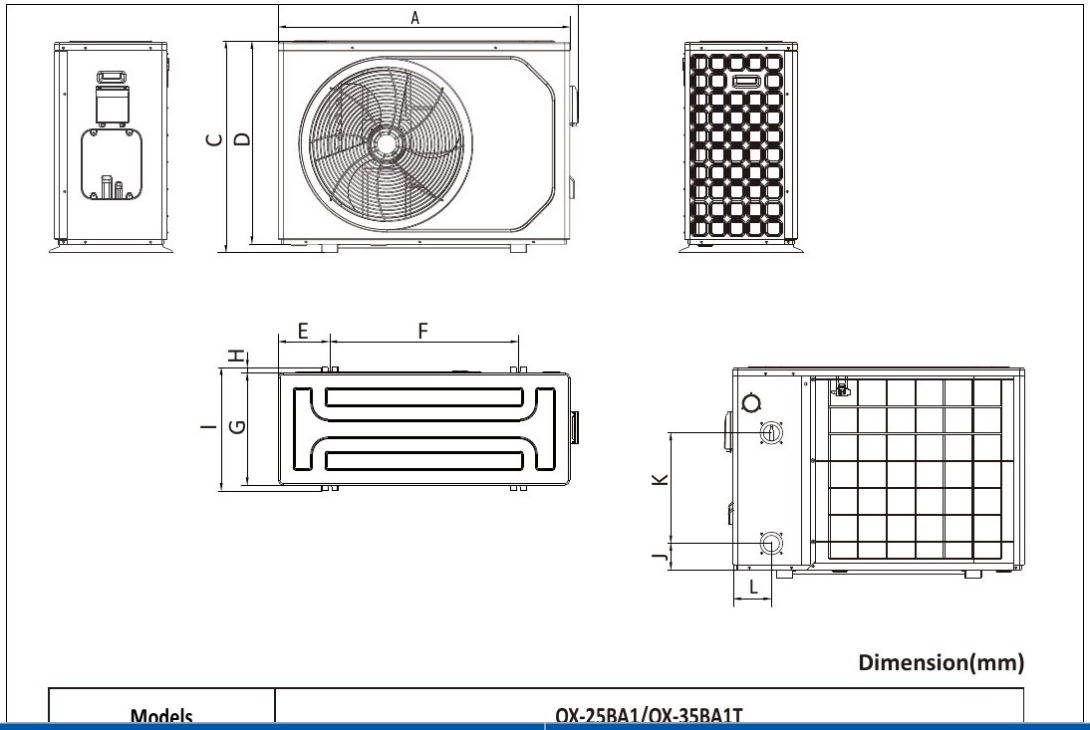
15 kW and 18 kW — 920 × 380 × 650 mm



Dimension(mm)

Reference	Dimension (mm)
A	896
B	920
C	650
D	626
E	158
F	580
G	346
H	17
I	380
J	82
K	340
L	118

25 kW and 35 kW — 1092 × 445 × 742 mm



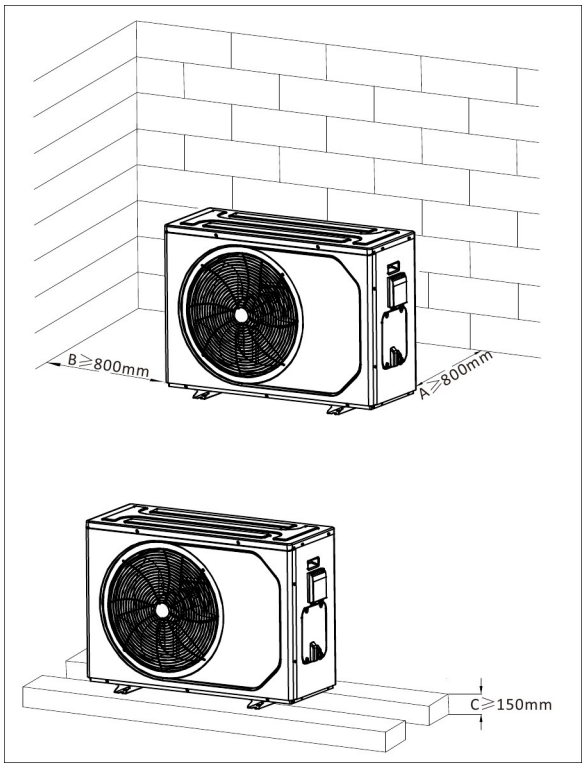
Dimension(mm)

Models	OX-25BA1/OX-35BA1T

Reference	Dimension (mm)
A	1065
B	1092
C	742
D	722
E	176
F	710
G	421
H	34
I	445
J	81.5
K	440
L	134

6. Installation

Install the unit outdoors in a well-ventilated location with unobstructed airflow. Observe the following minimum clearances:



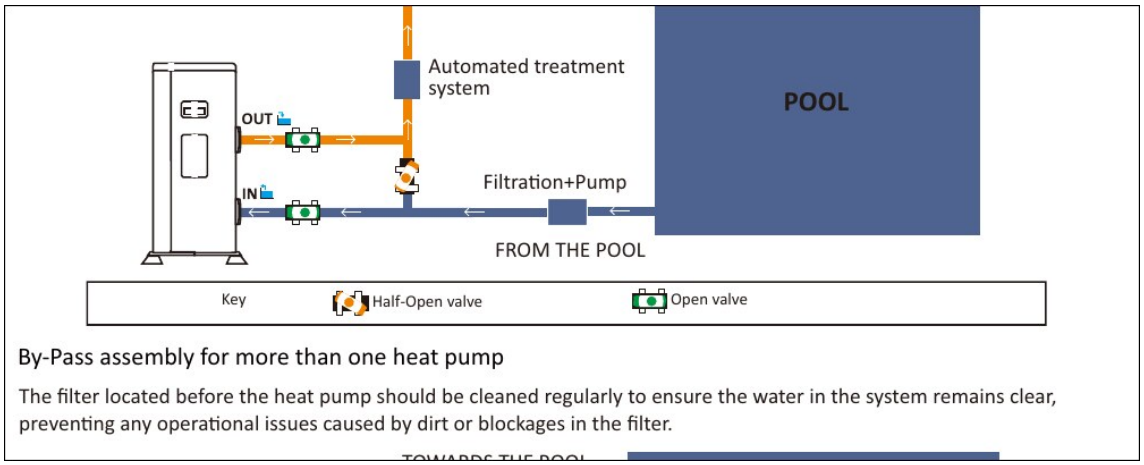
- A ≥ 800 mm on the front / air-outlet side
- B ≥ 800 mm on the back / air-intake side
- C ≥ 150 mm base height above the ground

Base and mounting rules:

- Mount on a solid, level concrete base, 150–200 mm above ground.
- In rainy or humid areas, raise the base ≥ 300 mm and provide drainage.
- In cold regions, set the base height ≥ snow depth + 100 mm.
- Use anti-vibration mounts to reduce noise transmission.
- For multiple units side by side, keep D ≥ 1000 mm between units.

7. Hydraulic Connection

Connect the unit to the pool water circuit through the Ø50 water connections. A by-pass assembly is strongly recommended to allow flow regulation and isolation for servicing.



By-Pass assembly for more than one heat pump

The filter located before the heat pump should be cleaned regularly to ensure the water in the system remains clear, preventing any operational issues caused by dirt or blockages in the filter.

By-pass assembly:

- Fit three valves: inlet, outlet and by-pass, as shown.
- The heat pump is installed after the filter and before any chlorinator or dosing device.
- Adjust the by-pass valve to achieve the required water flow through the unit.
- Provide drain/union connections to allow winterising and servicing.

8. Electrical Connection

ELECTRICAL HAZARD

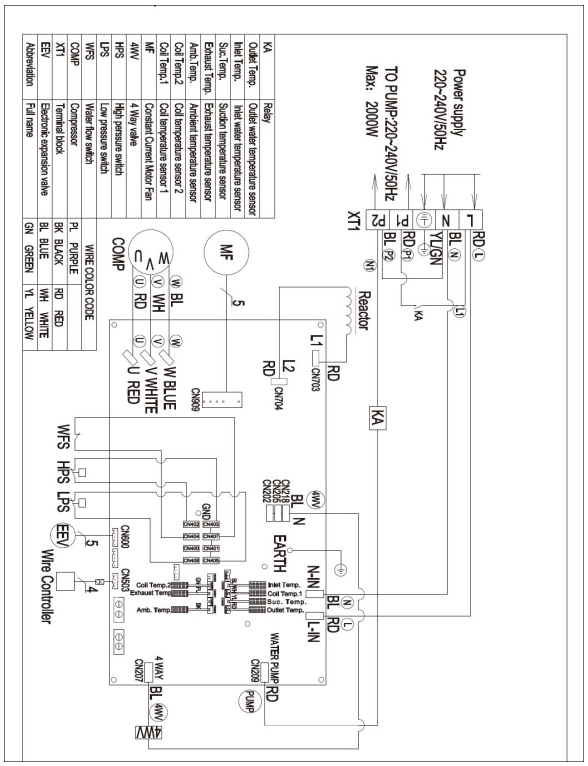
Disconnect and lock out the power supply before opening the electrical box. An upstream 30 mA residual-current device is mandatory. Use outdoor-rated cable; for cable runs longer than 10 m consult an electrician.

All electrical work must be carried out by a qualified electrician in accordance with local regulations.

Each model requires its own cable cross-section and circuit breaker rating. Select the row that matches your model.

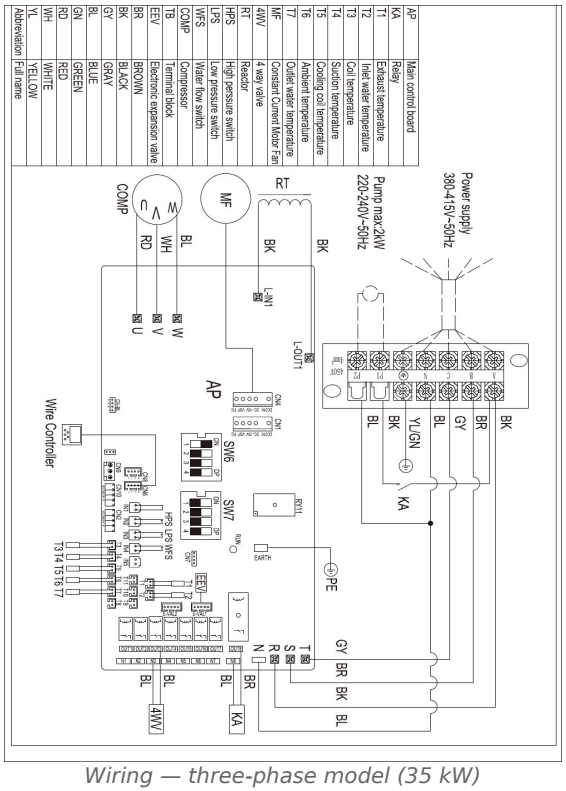
Model	Power supply	Max. current	Power cable	Circuit breaker (D curve)
OX-15BA1	220–240V / 50Hz	14.5 A	RO2V 3×4 mm²	20 A
OX-18BA1	220–240V / 50Hz	17.5 A	RO2V 3×4 mm²	25 A
OX-25BA1	220–240V / 50Hz	24.5 A	RO2V 3×6 mm²	32 A
OX-35BA1	380–415V / 3N~ / 50Hz	12.8 A	RO2V 5×4 mm²	20 A

Cable cross-sections apply to a maximum run of 10 metres. For longer runs, consult a qualified electrician. Upstream protection by a 30 mA residual-current device is mandatory for every model.



Wiring — single-phase models (15 / 18 / 25 kW)

Single-phase models (15 / 18 / 25 kW) — terminal block: L · N · earth · P1 · P2.



Wiring — three-phase model (35 kW)

Three-phase model (35 kW) — terminal block: R · S · T · N · earth.

9. Wire Controller Operation

The unit is operated from the wired LCD controller. The display shows the current mode, water temperature and status icons.

LCD display icons:

#	Icon / Function
1	AUTO mode
2	Energy-saving / silent mode
3	Powerful working mode
4	Heating mode
5	Cooling mode
6	Defrosting mode
7	Wi-Fi connection status
8	SET setting
9	IN — water inlet
10	Heat-pump compressor
11	Electric heater
12	Water pump
13	4-way valve
14	Heat-pump fan
15	Fan wind-speed steps
16	Key lock
17	Multi-phase timer
18	Timer ON/OFF
19	Time

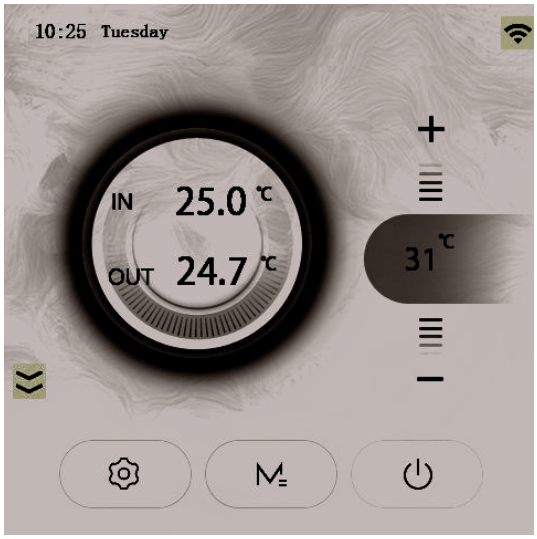
Operation modes (long-press the mode button to cycle):

1. Auto mode
2. Energy-saving heating
3. Powerful heating
4. Smart heating
5. Energy-saving cooling
6. Powerful cooling
7. Smart cooling

Button combinations:

Combination	Function
Switch + Down (3 s)	Toggle °F / °C
Mode + Down (3 s)	Manual defrost
Mode (3 s)	Switch operation mode
Mode + Timing + Up + Down (5 s)	Restore factory settings
Switch + Up + Down (3 s)	Connect to Wi-Fi

10. Wi-Fi Functionality



The heat pump features integrated Wi-Fi, allowing remote monitoring and control from a smartphone through the Smart Life app.

Network configuration:

1. Download and install the Smart Life app and create an account.
2. Connect your phone to a 2.4 GHz Wi-Fi network.
3. On the controller, press Switch + Up + Down for 3 s to enter Wi-Fi pairing; the Wi-Fi icon flashes.
4. In the app, tap “Add device”, select the heat pump and follow the prompts.
5. Enter the Wi-Fi password and wait for pairing to complete.
6. Once connected, the Wi-Fi icon stays lit and the unit appears in the app.

11. Parameter Tables

Parameter status query (c-codes):

Code	Description	Unit
c01	Ambient temperature	0.1°C
c02	Outside coil temperature	0.1°C
c03	Exhaust temperature	0.1°C
c04	Suction pipe temperature	0.1°C
c05	Radiator temperature	0.1°C
c06	Reserve	0.1°C
c07	Inside coil temp. (after throttle)	0.1°C
c08	Water inlet temperature	0.1°C
c09	Water outlet temperature	0.1°C
c10 – c12	Reserve	—
c13	Sensor failure	—
c14	System failure	—
c15	Driver failure	—
c16	Signal output	—
c17	Running status	—
c18	AC voltage	V
c19	DC voltage	V
c20	Actual frequency	Hz
c21	EEV open degree	—
c22	Reserve	—
c23	Heat pump current	A
c24	Compressor current	A
c25	DC fan speed	Rpm
c26	Compressor target frequency	Hz
c27	DC fan 2 speed	Rpm
c28	Master control software	V01
c29	Driver software	V00
c30	Wire-controller software	V01

Parameter settings (P-codes):

Code	Description	Default	Range	Remark
P01	Water inlet temp. setting — heating mode	27°C	8 – 40°C	—
P02	Water inlet temp. setting — cooling mode	27°C	8 – 28°C	—
P03	Water inlet temp. setting — auto mode	27°C	8 – 40°C	—

P04	Temp. difference before restart	1°C	1 – 18°C	—
P05	Heat pump ON/OFF at set temperature	1	0 – 2	0 = Const. temp. off · 1 = Const. temp. on · 2 = Photovoltaic logic
P06	Quick test mode (factory)	-17°C	-30 – 2°C	Only with special remote controllers
P07 – P08	Reserve	—	—	—
P09	Adjustment of P01 maximum value	40°C	15 – 40°C	—
P10	Reserve	—	—	—

12. Operation

Conditions of use:

The unit operates within an ambient temperature range of -15°C to +43°C. Ensure adequate water flow at all times and keep the air intake and outlet unobstructed.

Recommendations prior to start-up:

- Verify all hydraulic connections are tight and leak-free.
- Confirm the filtration pump is running and water flows through the unit.
- Check the electrical connection, breaker and residual-current device.
- Set the by-pass to achieve the recommended water flow.

Operation steps:

1. Start the filtration pump and confirm water flow.
2. Power on the heat pump and switch on the controller.
3. Select the desired mode (heating / cooling / auto).
4. Set the target water temperature (P01 for heating).
5. The compressor starts after a short delay and modulates to the load.

13. Maintenance & Servicing

Regular maintenance ensures long service life and stable performance.

Cleaning:

- Keep the air intake, coil and outlet free of leaves and debris.
- Clean the evaporator fins with a soft brush and low-pressure water.
- Check and clean the water filter regularly.

Annual maintenance:

- Inspect electrical connections and tighten terminals.
- Verify the earth connection and residual-current device.
- Check refrigerant circuit for leaks (certified technician).
- Confirm correct water flow and by-pass adjustment.

Winter storage:

- Switch off the unit and disconnect the power supply.
- Drain all water from the unit to prevent frost damage.
- Cover the unit with a breathable protective cover.
- Do not seal the unit in an air-tight cover (condensation).

14. Troubleshooting

If a fault occurs, the controller displays an error code. The table below lists the most common codes with their cause and solution. If a fault persists, contact your authorised Oxygon service partner. The error table differs by model, because the 25 and 35 kW models use a different controller.

OX-15BA1 · OX-18BA1

Code	Description	Cause & Solution
E03	Flow failure	1. Water filter clogged — clean the water circuit. 2. Pump head does not meet flow requirements — fit a suitable pump. 3. Pump wiring or flow direction incorrect — check and correct. 4. Water flow switch fitted in wrong direction — correct. 5. Flow switch terminal loose — reconnect.
E04	Reserved	—
E05	High-pressure protection	1. Replace faulty pressure switch. 2. Correct loose/incorrect wiring of the high-pressure switch. 3. Excess refrigerant — charge per nameplate. 4. No/low water flow — check pump and flow. 5. Air in refrigerant circuit — vacuum and recharge. 6. Refrigerant-side filter/throttle clogged. 7. Scale on the water-side heat exchanger — clean.
E06	Low-pressure protection	1. Replace faulty low-pressure switch. 2. Correct loose/incorrect wiring. 3. Refrigerant shortage/leak — locate and recharge. 4. Fan damaged or severe frosting — check fan wiring or replace fan. 5. Refrigerant-side filter/throttle clogged — replace.
E09	Communication failure — main board / controller	1. Communication cable between controller and main board not properly connected — rewire. 2. Main board and controller model/program mismatch — correct.
E10	Communication failure — driver / main board	1. Signal line contact failure or breakage. 2. Main control-board components damaged or damp — replace board. 3. Compressor driver-board components damaged or damp — replace driver board. 4. No power supply to the compressor driver board.
E11	After-throttle temperature sensor failure	1. Poor sensor wiring — correct. 2. Sensor damaged — replace. 3. Main-board port damaged — replace.
E12	Exhaust temperature too high	Contact your authorised Oxygon service partner.
E15	Water-inlet sensor failure	Contact your authorised Oxygon service partner.
E16	Outside-coil sensor failure	1. Poor sensor wiring — correct. 2. Sensor damaged — replace. 3. Main-board port damaged — replace.
E18	Exhaust sensor failure	1. Poor sensor wiring — correct. 2. Sensor damaged — replace. 3. Main-board port damaged — replace.
E21	Ambient temperature sensor failure	1. Poor sensor wiring — correct. 2. Sensor damaged — replace. 3. Main-board port damaged — replace.
E22	Large temperature difference between water inlet and outlet	1. Insufficient water flow — check whether the water circuit is clogged and the pump operates normally. 2. Inlet/outlet probes loose or dropped — reposition the temperature probes.
E23	Water-outlet temperature too low in cooling mode	1. Water-outlet temperature set too low — reset it. 2. Low water flow — check whether the water circuit is clogged and the pump works properly.
E27	Water-outlet sensor failure	1. Poor sensor wiring — correct. 2. Sensor damaged — replace. 3. Main-board port damaged — replace.

E29	Suction-pipe sensor failure	1. Poor sensor wiring — correct. 2. Sensor damaged — replace. 3. Main-board port damaged — replace.
E30	Outdoor low-temperature protection	1. Ambient temperature below the unit's allowed working temperature — normal protection. 2. Sensor position abnormal or sensor frozen — clean the sensor surface or reposition it. 3. Incorrect protection-temperature setting — adjust it. 4. The unit resumes automatically when the ambient temperature rises; no action needed.
E31	Auxiliary electric-heater overload protection	1. Low water flow — check the water circuit and pump. 2. Sensor damaged or loose — check the water-outlet temperature sensor.
E32	Water-outlet over-temperature in heating mode	1. Incorrect driver-board model or program. 2. Compressor or driver board damaged.
E33	Outside-coil over-temperature in cooling mode	1. Overload — water temperature too high, check. 2. Check the water flow and pump.
E34	Compressor drive failure	Check that the U / V / W compressor wiring is secure; replace the driver board if needed.
E35	Compressor over-current	Control-board hardware failure — replace the control board.
E36	Compressor output failure	Incorrect system matching, overload or frequency reduction — check system configuration and load.
E37	IPM current failure	High grid voltage — normal protection, the unit recovers automatically.
E39	Module emergency shutdown (high-pressure alarm / PFC fault)	High grid voltage — the unit recovers automatically once voltage normalises.
E40	DC voltage over-range	1. Sensor wiring broken/short — correct. 2. Replace the sensor. 3. Main-board port damaged — replace.
E41	DC voltage under-range	High grid voltage — the unit recovers automatically.
E42	Inside-coil sensor failure	Contact your authorised Oxygon service partner.
E44	AC over-current	1. Unstable grid voltage / overload — recovers automatically. 2. Control board damaged — replace.
E45	Driver E2 (EEPROM) failure	Check the DC-fan wiring, or replace the DC motor / driver board.
E46	DC-fan failure	Voltage fluctuation — the unit recovers automatically.
E47	AC voltage over-range	1. Unstable grid voltage — recovers automatically. 2. Control board damaged — replace.

OX-25BA1 · OX-35BA1

Code	Description
E03	Water flow fault
E04	Anti-freeze protection
E05	High-pressure protection
E06	Low-pressure protection
E09	Communication fault between the controller and the main board
E10	Communication fault between the main board and the driver board
E12	Exhaust temperature too high
E15	Inlet water temperature sensor fault
E16	External coil temperature sensor fault
E18	Exhaust temperature sensor fault
E20	Inverter module abnormal protection (see the numbers below)
E21	Ambient temperature sensor fault
E23	Cooling outlet water temperature too low
E27	Outlet water temperature sensor fault
E29	Return air temperature sensor fault
E32	Heating outlet water temperature too high, or inlet/outlet water temperature difference too large
E33	Cooling external coil temperature too high
E42	Internal coil temperature sensor fault (cooling coil)
Err 46	DC fan 1 fault

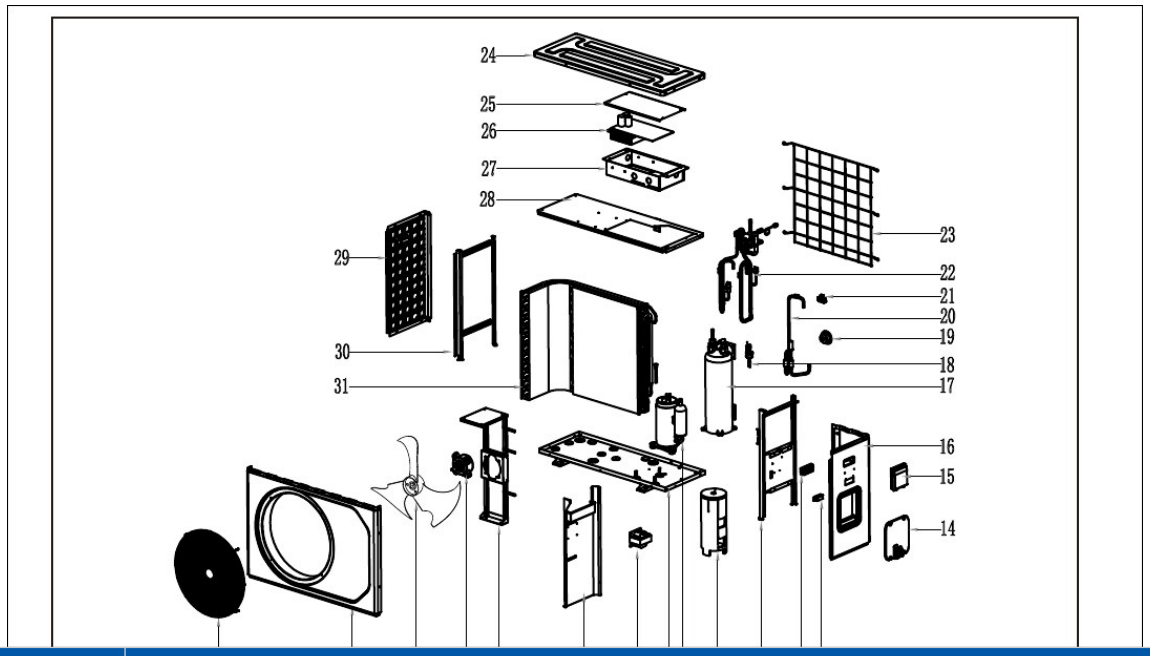
Code E20 alternates every 3 seconds with a number that identifies the inverter-module fault (table below). Numbers 1–128 have priority and are shown first; 257–384 are shown only when no fault in the 1–128 range is present. If two or more faults of the same priority occur together, the numbers are added (for example, 16 and 32 together show 48).

Number	Description	Action
1	IPM over-current — IPM module issue	Replace the inverter module
2	Compressor synchronisation error — compressor fault	Replace the compressor
4	Reserved	—
8	Compressor phase loss — compressor wiring broken or poor contact	Check the compressor input wiring
16	DC bus voltage low — input voltage too low or PFC module fault	Check the input voltage; replace the module
32	DC bus voltage high — input voltage too high or PFC module fault	Replace the inverter module
64	Heat-sink temperature too high — main fan fault or airflow blockage	Check the fan and airflow paths
128	Heat-sink temperature fault — heat-sink sensor short circuit or open circuit	Replace the inverter module
257	Communication fault — the inverter module did not receive a command from the controller	Replace the inverter module

258	AC input phase loss (valid for three-phase modules)	Check the input wiring
260	AC input over-current — three-phase imbalance on input (valid for three-phase modules)	Check the compressor input wiring
264	AC input voltage low — input voltage too low	Check the input voltage
272	High-pressure fault — compressor high-pressure fault (reserved)	—
288	IPM over-temperature — main fan fault or airflow blockage	Check the fan and airflow paths
320	Compressor peak current too high — excessive compressor line current, or mismatch between drive program and compressor	Replace the inverter module
384	PFC module over-temperature — PFC module temperature too high	Inspect the PFC module

15. Spare Parts & Accessories

The exploded view below shows the main components. Use the part numbers when ordering spare parts through your authorised Oxygon dealer.



No.	Component
1	Fan guard
2	Front panel
3	Fan blade
4	Motor
5	Motor bracket
6	Middle partition plate
7	Reactor
8	Chassis assembly
9	Compressor
10	Compressor soundproof cotton
11	Right support frame assembly
12	Terminal block
13	Wire clamp
14	Terminal cover plate
15	Wired-controller waterproof box
16	Right panel
17	Titanium tube heat exchanger
18	Water flow switch
19	Pressure gauge
20	Electronic expansion valve assembly
21	Ambient temperature bracket

22	4-way valve assembly
23	Rear grille
24	Top cover
25	Electrical box cover
26	Main control board
27	Electrical box
28	Top frame assembly
29	Left panel
30	Left support frame assembly
31	Evaporator assembly

16. Warranty & Contact

Warranty

Oxygon warrants this product against defects in materials and workmanship for a period of **24 months** from the date of purchase. The titanium heat exchanger carries an extended warranty as stated on the warranty card. The warranty covers manufacturing defects only and does not cover damage caused by improper installation, misuse, lack of maintenance, frost, incorrect water chemistry or normal wear. For warranty claims, contact your authorised Oxygon dealer with proof of purchase.

The warranty does not apply if:

- The unit was not used in accordance with Oxygon instructions.
- The unit was repaired or modified by unauthorised personnel.
- Non-genuine spare parts were used.
- The unit suffered frost damage or damage from incorrect water chemistry.
- The electrical installation was damaged by external factors (surges, etc.).

Contact Information

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ISO Certifications

ISO 9001:2015 Quality Management *EUROCERT*	**ISO 14001:2015** Environmental Management *BQV*	**ISO 45001:2018** Health & Safety *BQV*
ISO 22301:2019 Business Continuity *EUROCERT*	**ISO 46001:2019** Water Efficiency *BQV*	

Recycling of materials must be carried out in accordance with applicable regulations.