



SA CYCLONE EX Dehumidifier User Manual

SADH11440

ATEX, UKEX & IECEX APPROVED for Zone 1 & 2 (Gas)

IT IS MANDATORY TO READ THIS USER MANUAL TO ENSURE THAT THIS EQUIPMENT IS USED CORRECTLY AND SAFELY

WELCOME TO SA EQUIPMENT

Thank you for choosing to use one of SA Equipment's range of high quality ventilation products. The SA CYCLONE Ex Dehumidifier should give you many hours of safe and reliable service.

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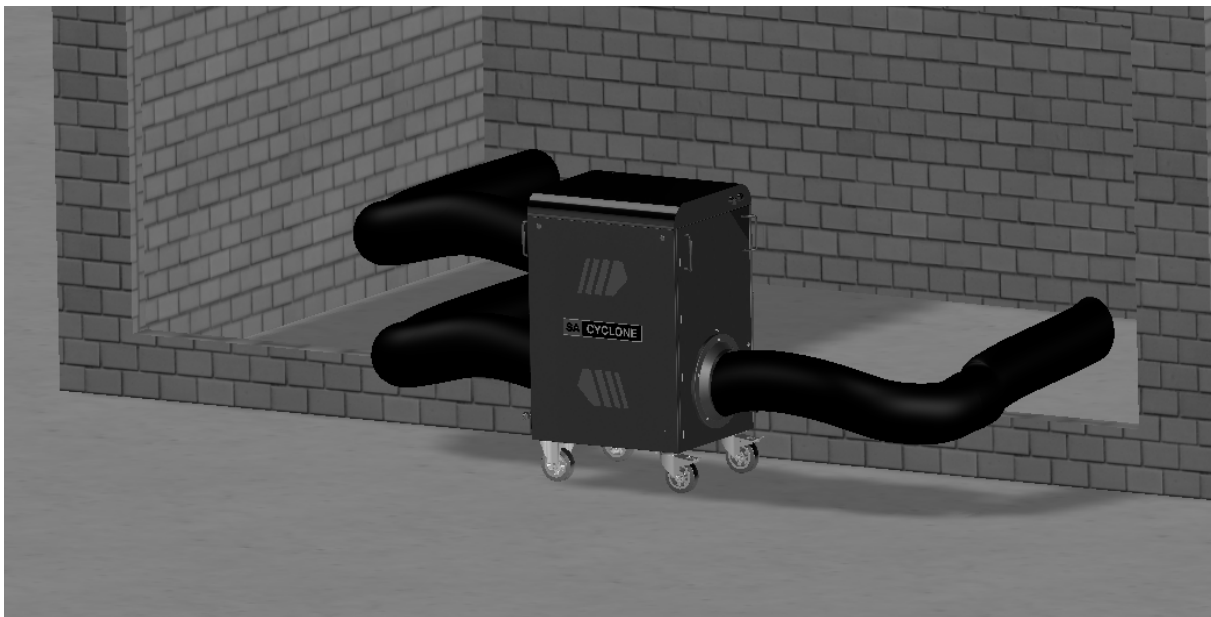
Product Information

This user guide covers the following products:

- SADH11440 – SA CYCLONE EX Dehumidifier Unit

Possible configurations

The SA CYCLONE Dehumidifier should be located in the setting to be dried, no ducting required, alternatively located outside and duct all inside.



Before Use - IMPORTANT!



ELECTRICAL SAFETY

- You are responsible to ensure that any equipment you use is suitable for the environment in which it will be used.
- You are also responsible for the safety of the equipment.
- **IMPORTANT** – The Dehumidifier must be connected to a suitable electrical supply using an Ex Zone 1 approved plug.
- You must make sure that the equipment is selected, installed and used in accordance with regulations (e.g. EN60079-14) plus any other local laws that may exist, and is checked before use.
- **THIS EQUIPMENT MUST BE KEPT IN A SUITABLE STATE BY REGULAR INSPECTION AND MAINTENANCE PROCEDURES.**
- Important - The Dehumidifier should not be stored in ambient temperatures below -30°C or above 70°C for more than 24hrs.
- This equipment must only be used for its intended purpose.

- The certification details of the plug can be found on the plug type label.
- If you are unsure about anything, get help before proceeding.

MOVING AND SETTING UP THE DEHUMIDIFIER

- Take necessary precautions to protect yourself and other workers from risk of hearing loss, by assessing where the Dehumidifier should be positioned in relation to where people are working and using applicable ear protection. For further information refer to statutory regulations and your company/ site guidelines relating to noise at work.
- **IMPORTANT** - This **SA CYCLONE Dehumidifier Unit** must not be taken into a Zone 0 Hazardous Area.

- The Dehumidifier is to be used in an upright orientation only including in transport. It has built in detection to prevent operation when not upright
- The Dehumidifier should not be moved while switched on; turn off the Dehumidifier before moving and then move to new position before switching on. Leave off for 1 hour before and after moving.



- Ensure there are no obstructions within 1 metre of the inlet or outlet of the Dehumidifier, as this will restrict the airflow and reduce performance.
- Ensure there are no sources of powerful vibration in the vicinity of the Dehumidifier unit.
- Beware of using Dehumidifier in environments where small particles (e.g. gravel) can be drawn in by the Dehumidifier due to the high airflow.
- Only **SA CYCLONE** Anti-static Ducting should be used with the Dehumidifier.
- When using duct ensure there are no obstructions to airflow in either inlet or outlet duct lengths.

- Connect drainage hose supplied (or similar) to remove moisture and dispose of waste water into a container

- Ship only in the original transport packaging to reduce the likelihood of damage in transit.
- Keep upright during moving, storage and lifting
- DO NOT operate above 50°C

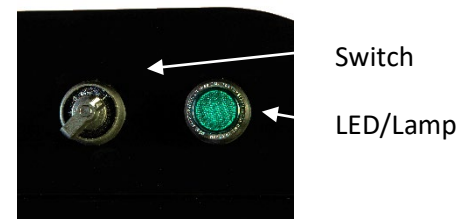


During Use

SWITCHING ON AND RUNNING THE DEHUMIDIFIER

- Position and set up the Dehumidifier according to the previous instructions.
- Check that the Dehumidifier is safe for use and has no defects, paying particular attention to the cooling and heating coils, the impellers and both finger guards.
- Ensure there are no loose particles inside the Dehumidifier.
- The Dehumidifier can then be connected to the correct supply. The supply voltage should be within the voltage range shown on the product type label. When power is applied, LED flashes for up to 10 secs. Wait until flashing stops.

- Once the illuminated lamp has stopped flashing, turn the Dehumidifier on using the power switch.



- If the Dehumidifier stops functioning or does not switch on, it should be taken into safe area before inspecting the control box. The Dehumidifier contains a manual-reset thermal cut-out and fuses, which may stop the Dehumidifier functioning in the event of a fault. It also contains level detection so make sure the unit is on flat ground. Please refer to the error codes on trouble shooting section on page 7.
- If the Dehumidifier gets damaged during use it must be immediately disconnected from the supply and removed to a safe area for inspection and test. Correct use of the equipment should help to ensure that it is not damaged. If you would like more information on ancillary products, please contact the Sales Team on **+44 (0) 333 340 6111** or **sales@saequip.com**.
- The fan blade rotates at high speed and care should be taken to ensure nothing protrudes through the finger guards while the Dehumidifier is running. Do not operate the Dehumidifier with missing or damaged finger guard
- Switch off: Turn the Dehumidifier off using the power switch, the fan motor will run for 30 secs and lamp will flash while cooling down. Once fan stops you can disconnect the supply

After Use

INSPECTION & MAINTENANCE PROCEDURES

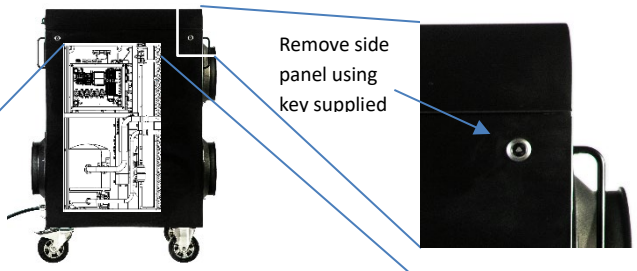
- Operator is responsible to comply with the following regulations: EN60079-17 and EN60079-19
- The basic resetting procedures as shown in the following trouble shooting section are the only repairs or adjustments that can be done by the user. More complex inspection and maintenance should be carried out by a Competent qualified electrician or a refrigeration engineer who meets the competence requirements of EN 13313. Carrying out work beyond this without permission and instruction from SA Equip will invalidate any warranty and could compromise the safety and functionality of the equipment
- Only original spares from SA Equip must be used. The use of any other parts will invalidate any warranty and could compromise the safety and functionality of the equipment. SA Equip offer a full repairs service. Contact SA Equip on +44 (0) 333 240 6111 or info@saequip.com for more details.
- Use appropriate treatment or disposal facilities in accordance with local laws and regulations. Refrigerant oil is to be replaced with 175PZ, POE Oil when required. Collection and disposal of refrigerant must be in accordance with local laws and regulations. In EU, this requires compliance with F-GAS Regulations
- Bearings in belt drive to be replaced every 15 years or 120,000 hours of use. Bearing oil is to be replaced with Shell GADUS S2 V220 00 when required.

The following tasks should be carried out on a periodic basis (annually or depending on usage and site requirements):

- External - Visually inspect all external parts and ensure no deformation has taken place due to mechanical loading or impact. Check all information and warning labels are present and legible. Do not allow dirt and/or dust to accumulate on the external surfaces of the equipment and pay particular attention that the finger guards are not damaged and are free from dust and dirt and any debris should be removed. The Dehumidifier should be cleaned when necessary using a damp cloth. If necessary use neutral soap. Do not spray or immerse in water and no abrasives, detergents or solvents should be used. Check for any loose bolts or nuts.
- Evaporator Duct Internal - Visually inspect components inside duct for damage, excessive build-up of dust, dirt and oil, paying particular attention to the cooling and heating coils, liquid drain, heat sink, motor casing and impeller. Check that bolts in the underside of the enclosure are not loose and that the condensate drain is not blocked or leaking.
- Enclosures - Check that Dehumidifier cable glands are tight, both on the enclosure and on the cable. Inspect the mains supply cable for damage. Verify that electrical enclosures are clean, dry and free of foreign materials and free of corrosion. Check lid gasket for damage. Check all bolts and nuts are tight.
- Electrical Enclosures - Check the all conductors are free of damage. Check the tightness of all terminal connections. Tighten loose connections. Check that the correct fuses are present in the fuse holders - fuse rating and type are printed on label mounted to inside of enclosure. Ensure enclosure lids are in place with all fasteners present and tight (3Nm).
- Temperature Controls - Check the thermostat settings have not been tampered with - the anti-tamper seal on the temperature setting indicator should be unbroken.
- Pressure Controls - Disconnect the pressure switches individually (one at a time) and ensure this prevents the Dehumidifier starting. If Unit starts, switch off immediately.
- Run Test - To verify operation, turn on Dehumidifier and run for a minimum of five minutes and check the air exiting the outlet warms up and then the controls cut in and the air cools down as in the normal cycle pattern of the Dehumidifier. Check unit runs with normal amount of vibration and there are no anomalous noises.
- Electrical Test - Check continuity across each pole of the SSR by testing between terminals with the power supply isolated - there should be no continuity. Conduct electrical earth bond, insulation resistance and phase tests or other tests as required by site regulations.
- Refrigeration - check pipework components and coils for damage, seals are intact, adequate oil level, pressure switches and temperature switches are in place, TEV operating correctly, refrigerant system charge is correct. Check for signs of leakage.
Refrigerant system checks to be done by competent Dehumidifier Engineer/Technician
- Belt Drive - check belt for signs of wear or misalignment, check belt tensioner moves freely and is creating adequate tension on the belt, adjust if necessary. Check belt and bearings for signs of wear/damage and replace if necessary.
- Vibration - Check that the vibration from the fan does not exceed 11.8mm/s RMS. Check bearings, belt and impellers for damage and ensure all bolts on the fan assembly are tight.

TROUBLESHOOTING

PLEASE NOTE:
The Dehumidifier enclosure must not be opened in a hazardous area or while the Dehumidifier is energised



Hang refrigeration gauges here

Thermostat reset switch

400V Mains fuses (x3)

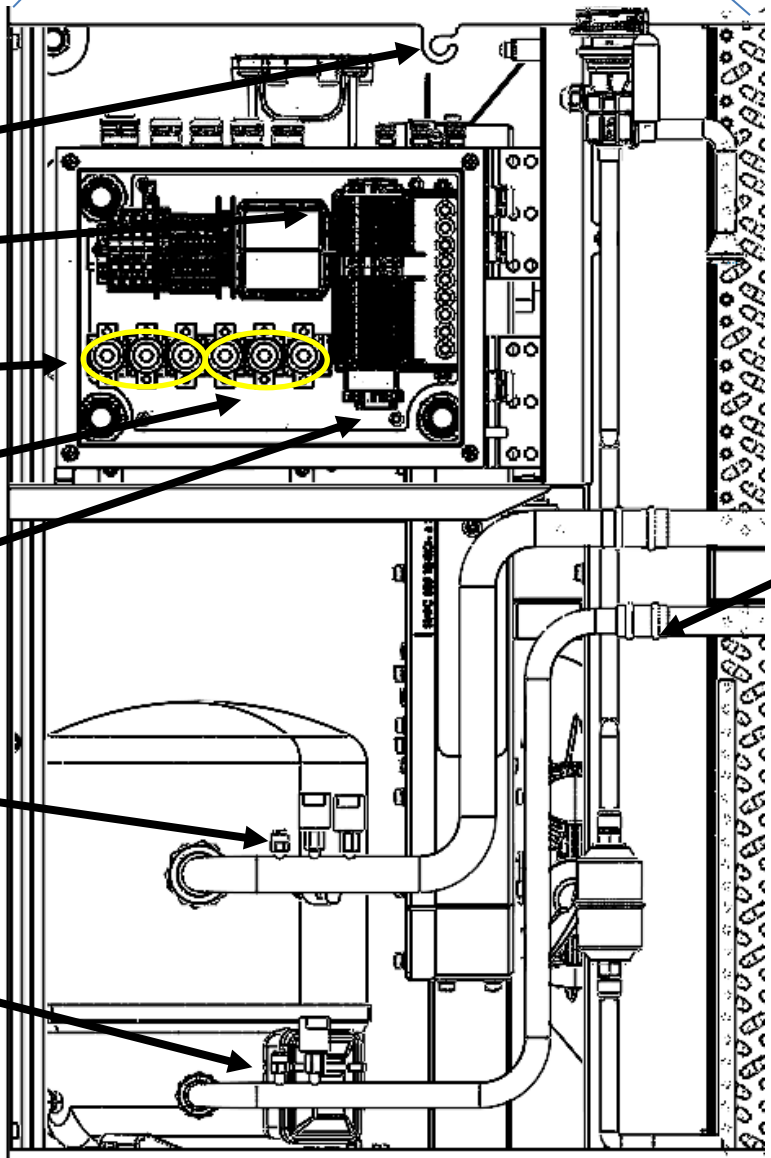
400V Power fuses (x3)

24V fuse

Low pressure Schrader valve

High pressure Schrader valve

Liquid line filter



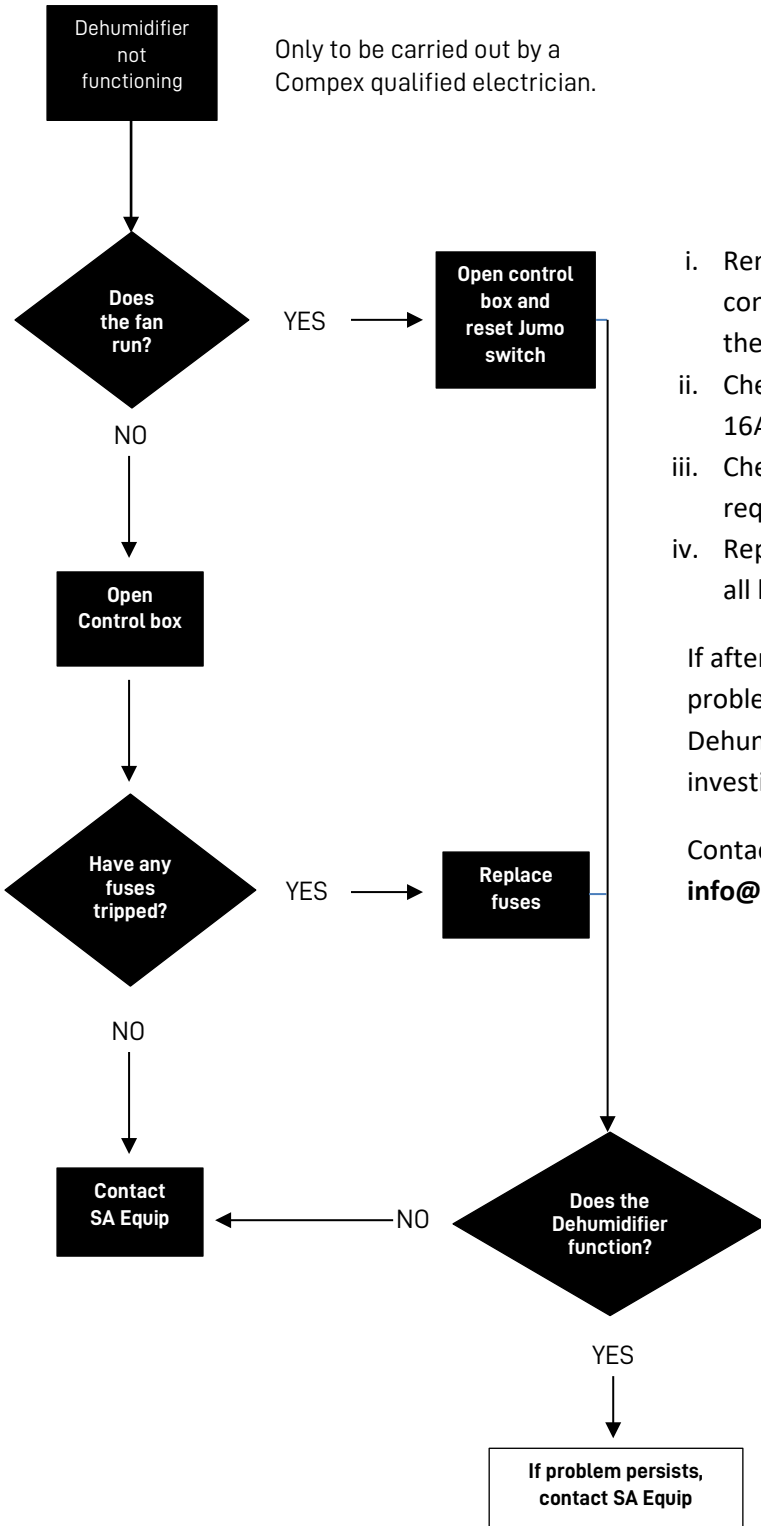
THE FLOW DIAGRAM BELOW ILLUSTRATES THE PROCEDURES FOR THE FOLLOWING SCENARIOS:

- DEHUMIDIFIER NOT RUNNING (FLASHING LED) – see page 7 for details
- DEHUMIDIFIER RUNNING BUT NO COOLING IS GENERATED

This means that only the fan is functioning and not the compressor, or the refrigeration has leaked. Contact refrigeration engineer to assess and repair.

- DEHUMIDIFIER DOES NOT RUN AT ALL (NO LIGHTS)

This can be caused by either the input fuses or the motor fuses inside the electrical control box enclosure tripping. This could be caused by a power supply problem, or misuse of the unit such as blocking the airflow.



Only to be carried out by a Compex qualified electrician.

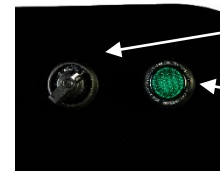
- i. Remove the bolts from the top of the electrical control enclosure and pull up the lid taking care of the attached earth cable.
- ii. Check the 3 input fuses and replace if required with 16A gG fuse part no. TRASP14016G.
- iii. Check the 3 logic controller fuses and replace if required with 1A gG fuse part no. TRASP14001G.
- iv. Replace lid ensuring gasket is in place, hand tighten all bolts with washers and then tighten to 3Nm.

If after these actions the AC still does not work or the problem persists, there is likely to be a fault in the Dehumidifier and it should be returned to **SA Equip** for investigation.

Contact SA Equip for support on **+44 (0)333 240 6111** or **info@saequip.com** for more details.

When first turning the Dehumidifier on the LED flashes for approx. 10 seconds and stops.

If there's a fault the LED will flash for a sequence, stop flashing briefly, then repeat the same sequence. Count the number of flashes in the sequence and refer to the table below.



Switch

LED/Lamp

LED LAMP ERROR CODE GUIDE

Number of LED Flashes	Error	Remedy
2	Orientation Limit	Ensure Dehumidifier unit is orientated on a level surface. The tilt angle must not be greater than 5 deg.
3	Vibration Limit	Check fan assembly for damaged impellers / belt misalignment / worn belt / failed bearings. Vibration alarm error will occur if Dehumidifier unit vibration levels reach 11.8mm/s RMS.
4	Refrigerant Fault	Check the Dehumidifier unit is not being operated above the maximum ambient temperature. Check that the refrigerant charge is correct and there are no refrigerant leaks
5	Fan fault 1	Check fan assembly for damaged impellers / belt misalignment / failed bearings
6	Fan fault 1	Check fan assembly for damaged impellers / belt misalignment / failed bearings
7	Wiring Fault	Check the fuse / check the power supply and connections.
8	High temperature fault	Ensure Dehumidifier unit is air inlet is orientated more than 1m away from obstructions and ensure the warm air duct is not recirculating in the area intended for drying.
9	Low temperature fault	Dehumidifier unit will not operate in temperatures below 8 deg C
10	Electronics Fault / Refrigeration Fault	Faulty hardware / firmware, graphic user interface may be used for further analysis - contact SA Equip for further Information.
11	Vibration Limit	Check fan assembly for damaged impellers / belt misalignment / worn belt / failed bearings. Vibration shutdown will occur if Dehumidifier unit vibration levels reach 12.5mm/s RMS.
12	Electronics Fault	Faulty hardware / firmware, graphic user interface may be used for further analysis - contact SA Equip for further Information.
13	Electronics Fault	Faulty hardware / firmware, graphic user interface may be used for further analysis - contact SA Equip for further Information.
14	Electronics Fault	Faulty hardware / firmware, graphic user interface may be used for further analysis - contact SA Equip for further Information.
15	Electronics Fault	Check the Dehumidifier unit is not being operated above the maximum ambient temperature. Check that the refrigerant charge is correct and there are no refrigerant leaks
16	Refrigerant Fault	Ensure system pressure is over 2 Bar. If system pressure has dropped under 2 bar there may be a leak and a refrigeration engineer will be required to perform a leak test/top up system refrigerant.
17	Refrigerant Fault	HP trip should be regarded as a critical fault - contact refrigeration engineer
18	Compressor fault	Faulty hardware / firmware, graphic user interface may be used for further analysis - contact SA Equip for further Information.
19	Compressor fault	Faulty hardware / firmware, graphic user interface may be used for further analysis - contact SA Equip for further Information.
20	Fan fault 2	Check fan belt for damage or breakage
21	Wiring Fault	Check the fuse / check the power supply and connections.
22	Wiring Fault	Check the fuse / check the power supply and connections.
23	Electronics Fault	Faulty hardware / firmware, graphic user interface may be used for further analysis - contact SA Equip for further Information.

SPECIFICATION

SADH 11440 - SA CYCLONE EX Dehumidifier

<ul style="list-style-type: none"> ■ SUPPLY VOLTAGE RANGE 	<p>380 to 480VAC 3 phase 50/60hz</p> <p>The Dehumidifier will be supplied fitted with either a 3P+E or a 3P+N+E plug as requested at time of order.</p>
<ul style="list-style-type: none"> ■ NOMINAL OUTPUT POWER 	<p>11kW @400VAC</p> <p>Output power will vary according to the actual voltage of the supply.</p>
<ul style="list-style-type: none"> ■ NOMINAL CURRENT DRAW @ 400V 	<p>Run 15A @ 400VAC Start-up 22A @ 400VAC</p>
<ul style="list-style-type: none"> ■ DIMENSIONS 	<p>700mm(l) x 700mm(w) x 1290mm(h)</p>
<ul style="list-style-type: none"> ■ WEIGHT 	<p>200kg</p>
<ul style="list-style-type: none"> ■ FREE AIRFLOW 	<p>690m³/h @ 50Hz</p>
<ul style="list-style-type: none"> ■ AIR SPEED 	<p>15.5m/s (51ft/s) @ 50hz 16.3m/s (54ft/s) @ 60hz</p>
<ul style="list-style-type: none"> ■ NOISE LEVEL 	<p>83dba at 1 metre</p>
<ul style="list-style-type: none"> ■ TYPICAL MOISTURE EXTRACTED 	<p>200L / Day</p>
<ul style="list-style-type: none"> ■ MAX PRESSURE 	<p>25.3 bar</p>
<ul style="list-style-type: none"> ■ REFRIGERANT 	<p>2kg of R134a</p>

CERTIFICATION

■ The **SA CYCLONE EX** Portable Dehumidifier Unit is ATEX, UKEx AND IECEX certified as transportable equipment for use in Zone 1 and Zone 2 Gas areas. Each Dehumidifier has a marking plate bearing the specific product information and certification details as follows:

<ul style="list-style-type: none"> ■ ATEX CERTIFICATE NUMBER 	<p>Ex Veritas 25 ATEX 2037X</p>
<ul style="list-style-type: none"> ■ UKEX CERTIFICATE NUMBER 	<p>Ex Veritas 25 UKEX 2038X</p>
<ul style="list-style-type: none"> ■ IECEX CERTIFICATE NUMBER 	<p>IECEX EXV 25.0010X</p>
<ul style="list-style-type: none"> ■ CERTIFICATION MARKING 	<p>Ex II 2 G/D Ex db eb ib mb pb IIB T4 Gb Ex db ib mb pb tb IIIC T135°C Db</p>
<p>Ex II 2 G</p>	<p>Ex Explosive Atmospheres Symbol. Indicates compliance with ATEX directives. II Equipment Group II. Certified for use above ground (i.e. not mines). 2 G Equipment Category 2 – Gas. Certified for Zone 1 classified areas (inc. Zone 2).</p>
<p>Ex db eb h ib mb IIB T3 Gb Ex db ib mb pb tb IIIC T135°C Db</p>	<p>Ex Explosive Atmospheres Symbol. Indicates compliance with ATEX directives. Ex Indicates protection methods used to achieve ATEX certification. IIB Gas equipment group IIB. Suitable for areas with IIA, IIB gases. IIIC Dust equipment group IIIC. T4 Temperature Classification (Gas/Dust) Surface temperature of the heater will not exceed 135°C.</p>
<ul style="list-style-type: none"> ■ OPERATING TEMPERATURE 	<p>Gb/Db Equipment Protection Level – High Level of Protection Certified for Zone 1 classified areas (inc. Zone 2).</p> <p>Ta -20°C to +50°C Certified for use in areas with ambient temperatures within this range.</p>
<ul style="list-style-type: none"> ■ INGRESS PROTECTION 	<p>IP65 The Dehumidifier is suitable for use outdoors in all normal weather conditions as the electrical enclosures have at least this level of ingress protection.</p>
<ul style="list-style-type: none"> ■ SPECIFIC CONDITION OF USE 	<p>The Dehumidifier is to be used in a horizontal orientation only.</p>
<ul style="list-style-type: none"> ■ OTHER CERTIFICATION 	<p>The Dehumidifier is also compliant with the following regulations. 2004/108/EC EMC 2006/42/EU Machinery 2011/65/EU RoHS</p>

DECLARATION OF CONFORMITY



Manufacturer: SA Equipment Ltd
Address: 10 Clifton View
East Mains Industrial Estate
Broxburn
EH52 5NE

EU Address: SA Equip Europe BV
Oud Camp 22
3155 DL Maasland
The Netherlands

This is to declare that Equipment Type: **SA CYCLONE EX Dehumidifier**

Has been designed and manufactured in accordance with the following directives and regulations: **Equipment and Protective Systems Intended for use in Potentially Explosive Atmospheres Regulations 2016 - SI 2016 No. 1107 and 2014/34/EU ATEX**

Provisions of the Directive 2014/34/EU fulfilled by the Equipment:

**Ex II 2 G/D Ex db eb ib mb pb IIB T4 Gb Ta -20°C to +50°C IP65
Ex db ib mb pb tb IIIC T135°C Db**

Notified Body for EC-Type Examination:	Intertek Italia SPA
Approved Body for Type Examination:	Intertek
EC-Type Examination Certificate:	Ex Veritas 25 ATEX 2037X
UK Type Examination Certificate:	Ex Veritas 25 UKEX 2038X
Notified Body for production:	SGS Fimko Oy 0598 Espoo Finland
Approved Body for production:	SGS Baseefa 1180

2006/42/EC S.I. 2008 No. 1597. (Machinery) the product fulfils all the provisions of this directive including compliance with the Essential Health and Safety Requirements in Annex 1.

2014/30/EU S.I. 2016 No. 1091. EMC

2014/68/EU S.I. 2016 No. 1105. PED

2011/65/EU S.I. 2012 No. 3032. RoHS

Harmonised/designated standards used:

- EN IEC 60079-0:2018 Explosive atmospheres. Equipment. General requirements
- EN 60079-1:2014 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
- EN 60079-2:2014/AC:2015 Equipment protection by pressurized enclosure "p"
- EN 60079-7:2015/AI:2018 Explosive atmospheres. Equipment protection by increased safety "e"
- EN 60079-11:2012 Explosive atmospheres. Equipment protection by intrinsic safety "I"
- EN 60079-18:2015+A1:2017 Explosive atmospheres. Equipment protection by encapsulation "m"
- EN 60079-31:2014 Equipment dust ignition protection by enclosure "t"
- EN ISO 80079-36:2016 Explosive atmospheres. Non-electrical equipment for explosive atmospheres. Basic method and requirements
- EN ISO 80079-37:2016 Explosive atmospheres. Non-electrical equipment for explosive atmospheres. Non-electrical type of protection constructional safety "c", control of ignition sources "b", liquid immersion "k"
- EN 14986:2017 Design of fans working in potentially explosive atmospheres.

Other standards used.

- EN 60079-14 was used in part as a reference for the interconnection of the individual units of the assembly.
- EN ISO 14694:2003 Industrial fans. Specifications for balance quality and vibration levels
- EN ISO 12100:2010 Safety of machinery. General principles for design. Risk assessment and risk reduction
- EN ISO 13857:2008 Safety of machinery. Safety distances to prevent hazard zones being reached by upper and lower limbs.
- EN 378-1/2/3/4: 2016 Refrigerating systems and heat pumps — Safety and environmental requirements
- EN 60204-1:2018 Safety of machinery. Electrical equipment of machines. General requirements

This declaration is issued under the sole responsibility of the manufacturer.

On behalf of the above-named company, I declare that, on the date the equipment accompanied by this declaration is placed on the market, the equipment conforms with all technical and regulatory requirements of the above listed directives and regulations.

Signed



M Shimwell, Managing Director

Issue 1 - 10/2025

WARRANTY

The **SA CYCLONE** EX Dehumidifier has a product warranty of one year from the date of delivery. The warranty does not cover cables. The warranty only covers defects in materials or workmanship. User abuse and/or failure to comply with these instructions will invalidate the warranty and may also invalidate the safety certification. The information supplied in this User Guide does not in any way remove any responsibility from the user of the Dehumidifier. For more information please see our full Conditions of Sale, available on request.

English is original language version

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