

# Instruction manual

Outdoor cabinet cooling units

## OC-4120D



Instruction manual

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## 1. Introduction

### 1.1 Seifert mtm Systems

Seifert mtm Systems designs and manufactures thermal management systems including heat exchangers, air conditioners, fan trays, controllers, heat sinks and thermoelectric products.

### 1.2 Outdoor cabinet air conditioner

#### 1.2.1 Type of unit

The unit is an outdoor electrical enclosure air conditioner.



- Year of manufacture (see data label)
- Model
- CE- Certification

#### **Manufacturer:**

Seifert mtm Systems Malta Ltd  
HF 9/10, Ind. Est.,  
Hal Far, BBG 3000-Malta

#### 1.2.2 Conditions of use

The unit is to be used exclusively for the dissipation of heat from outdoor cabinets and enclosures in order to protect temperature sensitive components. To meet the conditions of use all the information and instructions in the instruction manual must be followed.

#### 1.2.3 Misuse

The unit must only be used as described under "Conditions of use." Any other utilization will be considered as misuse.

#### **Examples of misuse are:**

- Household use.
- Air-conditioning other domestic areas.

#### **Misuse can lead to:**

- Death or personal injury.
- Damage to the unit.
- Other material damage.

## Instruction manual

### 1.3 Legal regulations

#### 1.3.1 Liability

The information, data and instructions in this instruction manual are current at the time of printing. We reserve the right to make technical changes to the unit in the course of its development. Therefore no claims can be accepted for previously delivered units based on the information, diagrams or descriptions in this manual. No liability can be accepted for damage and production disruption caused by:

- Operations outside of the instruction manual.
- Operator errors.
- Unauthorized work on the unit.
- The use of non-specified spares and accessories.
- Unauthorized modifications or changes to the unit by the user or his personnel.

Seifert mtm Systems is only liable guarantee circumstances in this contract agreement. Claims for damages on any grounds are excluded.

#### 1.3.2 Warranty

Warranty claims must be made immediately after the fault is discovered to Seifert mtm Systems, Inc. The warranty is valid for one year from date of delivery provided the unit has been correctly used. The warranty covers free repair at Seifert mtm Systems, RI, or at our choice, the free replacement of units returned to us pre-paid. When returning units the instructions contained in paragraph 10.2 must be followed.

The warranty is void in cases of:

- Misuse.
- Unauthorized work on or with the unit.
- Unspecified use of materials, fluids, gases or electrical supply.
- Use of non-specified spares and wearing parts.

#### 1.3.3 Copyright

This manual and all enclosed documents are protected by copyright. Copies of the manual, in whole or part, or information as to the utilization of its contents must not be passed on to third parties without the express permission Seifert mtm Systems. Litigation for damages can be made in cases of contravention. We reserve all rights for the full exercise of industrial copyright protection.

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## Instruction manual

### 1.4. Instruction manual

This instruction manual contains information and instructions to enable the user to work safely, correctly and economically with and on the unit. Only when the manual is understood and abide by can:

- Danger be avoided.
- Repair costs and stoppages reduced.
- Reliability and working life of the unit can be improved and extended.

#### 1.4.1 Definitions

The main vocabulary used in this manual can be defined as follows:

**Unit:** Refers to the enclosure air conditioner

**User:** is every actual or legally entitled person who uses the unit or who can entitle others to do it.

**Specialist personnel:** a specialist is someone who due to training, knowledge and experience has the judgment necessary to carry out his work in a safe and correct manner. Specialist personnel are fully acquainted with safety regulations, standards, relevant regulations and working conditions.

**Residual danger:** refers to danger or risks which are not apparent when using the unit. For example:



- High electric voltage within the cabinet.



- Burns from hot components after the unit has been switched off.



- The cooling circuit is pressurized. There are moving parts inside the unit.

## Instruction manual

### 1.4.2. Pictograms and symbols contained in the text

In order to emphasize important information the following symbols and pictograms have been used in this manual.

#### Symbols:

- indicates specific points in a list
- indicates separate maintenance and operating steps

#### Pictograms:



#### General danger

Indicates compulsory safety regulations which are not covered by a specific pictogram such as one of the following.



#### High electric voltage

Indicates electric shock danger.



#### Important safety instruction

Indicates instructions for safe maintenance and operation of the unit.



#### Attention

Indicates possible burns from hot components.



#### Attention

Indicates possible damages to the unit.



#### Instruction

Indicates possible danger to the environment.

## Instruction manual

### 1.4.3. Structure and formation of the safety instructions

All safety instructions in this manual have a standardized structure. A safety instruction is made up of several parts:

- A pictogram.
- A signal word denoting the degree of danger.
- An instruction denoting the type of danger.
- An instruction for defense against the danger

The following signal words indicate the degree of danger:

**Danger:** Indicates an imminent danger for person's possible consequences: death or serious injury

**Attention:** Indicates possible personal or material danger.

**Instruction (notice):** Indicates a situation which could lead to damage to property or the environment.  
Possible consequences: damage of the unit itself, adjacent plant or the environment.



## **2. Safety instructions**

### **2.1. Primary safety instructions**

When delivered the unit meets current technical standards and can be safely taken into operation.

However, danger could originate when:

- Unauthorized or untrained personnel work on or with the unit.
- The unit is misused.

This could result in danger to persons, the unit and other property or material of the user.

#### **2.1.1. Instruction manual**

The submitted instruction manual serves to enable the user to work safely and correctly with and on the unit. It contains safety instructions which must be followed. In addition to the primary safety instructions contained in this chapter there are specific safety instructions in the other chapters. These instructions warn of dangers concerned with specific operations and must also be followed.

The instruction manual must:

- Be read and understood by everyone working on or with the unit before the work commences.
- Always be held available in a specific location on the unit.
- Be complete and in readable condition.

If the operator does not fully understand the instruction manual advice must be obtained from a specialist before work commences either;

- In the works where the unit is located or,
- At Seifert-mtm Systems

Before a dangerous situation develops.

#### **2.1.2. User obligations**

The user has many obligations to fulfill on behalf of his personnel.

The user is obliged:

- To update the manual with instructions contained in national safety and environmental regulations.
- To inform the personnel of all relevant instructions, regulations and laws.
- To ensure that all relevant instructions, regulations and laws are observed.
- To clearly delegate responsibility for operation, maintenance, cleaning and repair of the unit.
- To ensure that the delegated duties are carried out.
- To ensure that the personnel have read and understood the instruction manual especially the chapter on safety.

## Instruction manual

### 2.1.3 Personnel

Only specialists are allowed to work on the unit. Unauthorized personnel must be prohibited from working on the unit.

Operating personnel must inform their superiors immediately if any malfunction on the unit becomes apparent.

### 2.1.4 The Outdoor cabinet air conditioner

When working on or with the unit the following must be observed:

- Applicable current state and local laws and regulations
- The current accident prevention regulations(BGV)
- Related regulations
- The current environmental conservation regulations

The unit must only be used when in perfect working condition. When malfunctions or errors become apparent the unit must be immediately taken out of operation and the responsible personnel informed.

The unit can only be taken back into operation when its perfect working condition has been restored.

### 2.1.5. Safety instructions

Please note that before starting work on or with the unit certain procedures must be carried out inside the cabinet on which the unit is mounted. These are among others mounting and taking the unit in or out of operation.

Before commencing work inside the cabinet the control cabinet manufacturer's instruction manual must be read with regard to:

- Safety instructions
- Instructions on taking the cabinet out of operation
- Instructions on the prevention of unauthorized cabinet reconnection.

## 2.2. General safety instructions

The electric equipment meets the valid VDE- and accident prevention and safety regulations.

Dangerous voltage exists (above 50 V AC or above 100 V DC)

- Behind the control cabinet doors
- On the power supply in the unit housing.

Only use original fuses with the specified current. Switch the unit off immediately, if the electric power supply is interrupted.

## Instruction manual



### **Danger:**

*Danger from electrical voltage.*

Only specialized personnel are allowed to maintain and clean the unit. The personnel must ensure that for the duration of the maintenance and cleaning the unit is disconnected from the electrical supply.

The unit must therefore be taken out of operation according to instructions before work commences.



### **Danger**

*Danger through incorrect work on the unit.*

Only specialized personnel are allowed to maintain and clean the unit. Regular maintenance and cleaning intervals must be kept to in order to ensure that the unit remains in perfect working condition and has a long working life.



### **Attention**

*Damage to the unit through the use of inappropriate cleaning materials.*

Please do not use aggressive cleaning materials.



### **Instruction**

*Damage to the environment through unauthorized disposal.*

All spare parts and associated materials must be disposed of with due regard for the environment.

The relevant environmental laws and regulations must be adhered to.

### **3. Technical information**

#### **3.1. Concise unit description**

The air conditioner is used where heat needs to be dissipated from outdoor cabinets in order to protect heat sensitive components. The unit has two completely separate air circuits which ensure that the clean cabinet air does not come into contact with the ambient air which may well be dirty or polluted. Outdoor cabinet air conditioners can dissipate large quantities of heat from outdoor cabinets into the ambient air and at the same time reduce the cabinet internal temperature to below that of the ambient air.

The outdoor cabinet air conditioner can function without problems in extreme ambient conditions (e.g. dusty and oily air or high air temperatures up to 50°C).

#### **3.2. Functional principles**

The unit functions on the principle of the compression refrigerator. The main components are: refrigerant compressor, condenser, expansion valve and evaporator. These four components of the refrigerant plant are connected with each other by pipes to form a hermetically sealed system in which the refrigerant (R134a) circulates. R134a (C<sub>2</sub>H<sub>2</sub>F<sub>2</sub>) is chlorine-free and has an ozone destruction potential (ODP) of 0.

#### **3.3. Description of operation**

When the unit is in operation the compressor draws in refrigerant vapor from the evaporator. The necessary energy needed to vaporize the refrigerant is taken from the cabinet air which flows through the evaporator. This cools the cabinet air which is then blown back into the cabinet by a fan. The refrigerant vapor, which has been drawn in by the compressor, is pumped under high pressure into the condenser. There the heat which has been taken from the evaporator and compressor is dissipated in the ambient air which flows through the condenser. This condenses the refrigerant and the resulting heat is again passed on to the atmosphere. The expansion valve reduces the refrigerant to the necessary evaporator pressure. The introduction of heat evaporates the refrigerant. The evaporator is designed to fully evaporate the refrigerant. The refrigerant circuit is then complete.

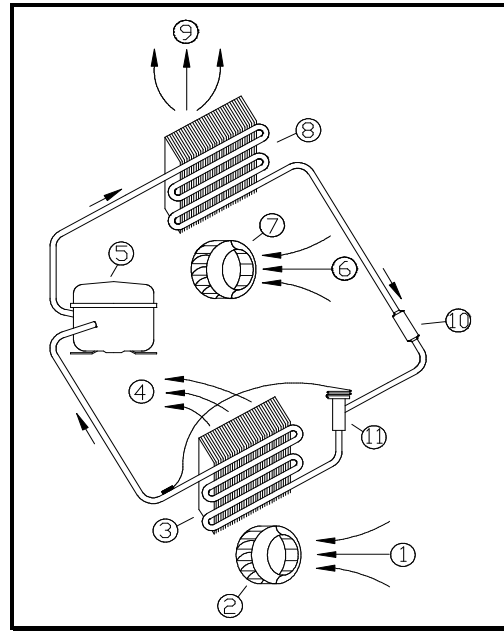
##### **3.3.1 Unit controls**

The unit is controlled in relation to the cabinet internal air temperature. A sensor constantly measures the air temperature as it is drawn into the unit from the cabinet. The compressor speed is varied according to the reading taken by the sensor in such a way to operate in the most efficient manner and to reduce the switching on and off of the compressor. This helps to keep the temperature inside the control cabinet as constant as possible in order to reduce temperature induced stress on the components and fluctuating temperatures. The speeds of the ambient and internal fans are regulated for optimal performance of the unit.

The compressor start-up delay is ca. 5 min (referred to as minimum standing time). The min. compressor running-time is ca. 3 min. (for oil lubrication in the system, referred to as minimum running time). To obtain pressure equalization in the system the compressor has a min. shut-down time of ca. 5 min (minimum standing time). The ambient air fan (condenser) switches on and off together with the compressor in order to save energy. The cabinet air fan runs continuously, independent of the compressor, to provide constant air circulation and maintain an even temperature in the cabinet.

#### **3.4. Pictorial description**

The pictorial description shows the main components of the control cabinet air conditioner in pictorial form to aid recognition and orientation. The individual components are numbered.



**Fig: Diagram of outdoor cabinet air conditioner**

1. Air intake cabinet side.
2. Radial fan cabinet side.
3. Evaporator.
4. Air outlet cabinet side.
5. Compressor.
6. Air intake ambient side.
7. Radial fan ambient side.
8. Condenser.
9. Air outlet ambient side.
10. Filter dryer.
11. Expansion valve.

<b>4. Technical data</b>	
	<b>OC-4120D - 4120048</b>
Housing material/Surface finish	Sheet Metal Steel, Powder coated RAL7035
Housing dimensions	500mm x 250mm x1320mm
Weight	52 kg
Operational temp. range	10°C – 50°C
Protection rating	IP55 / IP24
<b>Cooling performance according to DIN 3168 L35 L35</b>	
Cooling capacity @ L35L35	2000W
Compressor	Rotary piston
Refrigerant	R 134 a
Refrigerant load	1780g
Max. working Pressure	PS 40 / PO 37bar
<b>Electrical data</b>	
Nominal Voltage	48 V DC
Operating Voltage	40 - 58 V DC
Rated current	32A
Max. start-up current	45A
Power consumption	1500 W (Max.)
Fuse Rating	45 A T

4.1.

Performance characteristics

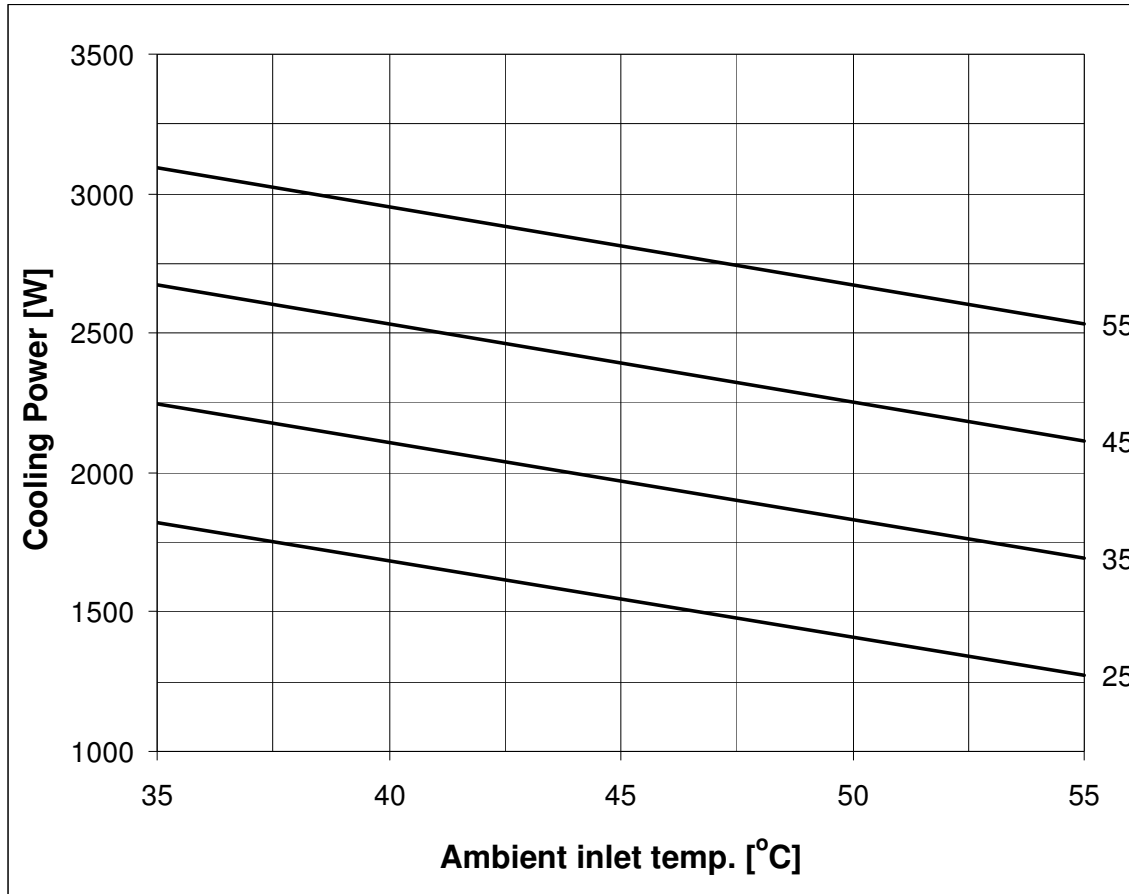
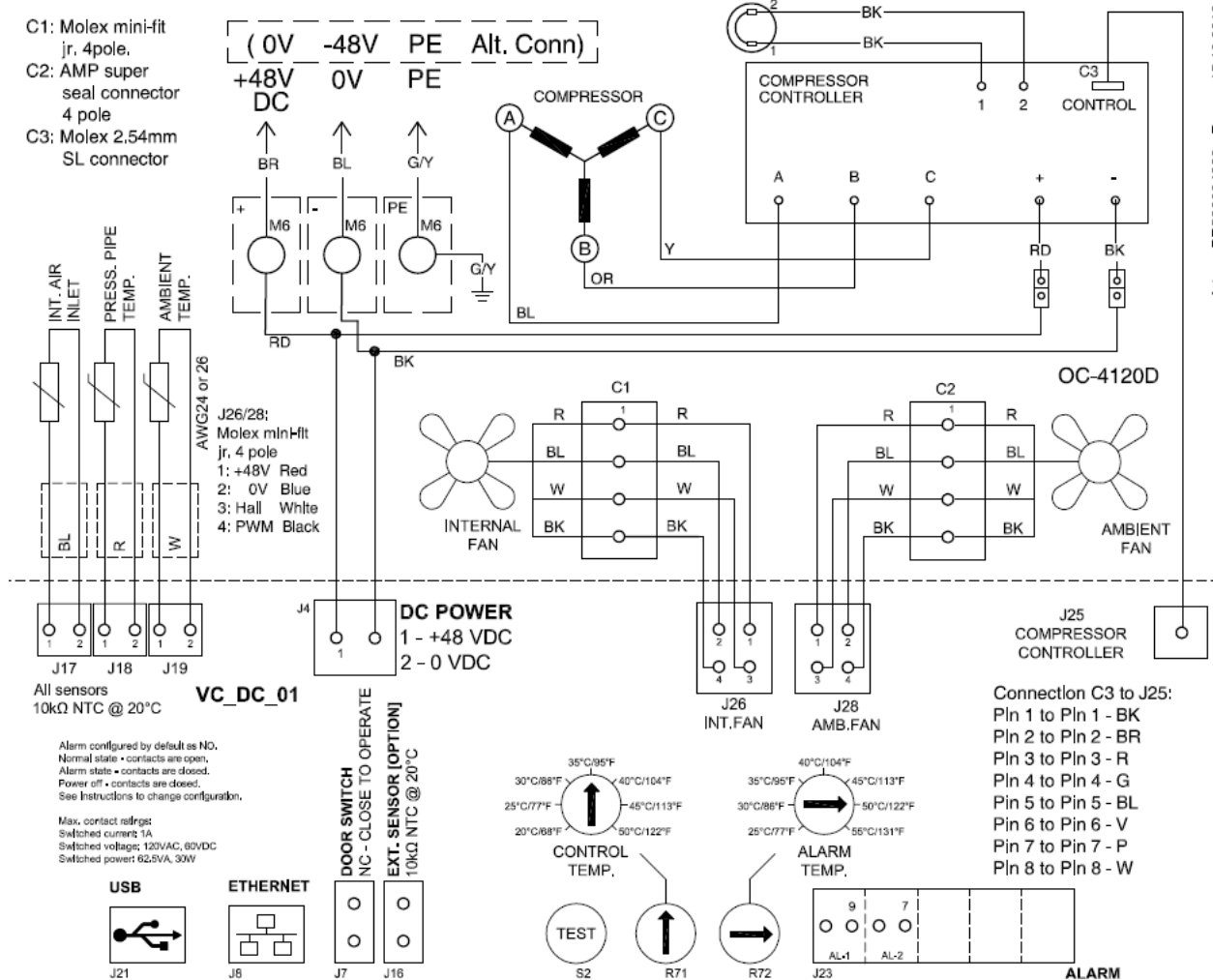


Fig: Performance characteristics OC-4120D, blowers @ 80% full speed & compressor @ 3600rpm

- C1: Molex mini-fit jr. 4pole.
- C2: AMP super seal connector 4 pole
- C3: Molex 2.54mm SL connector



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Fig: Circuit diagram



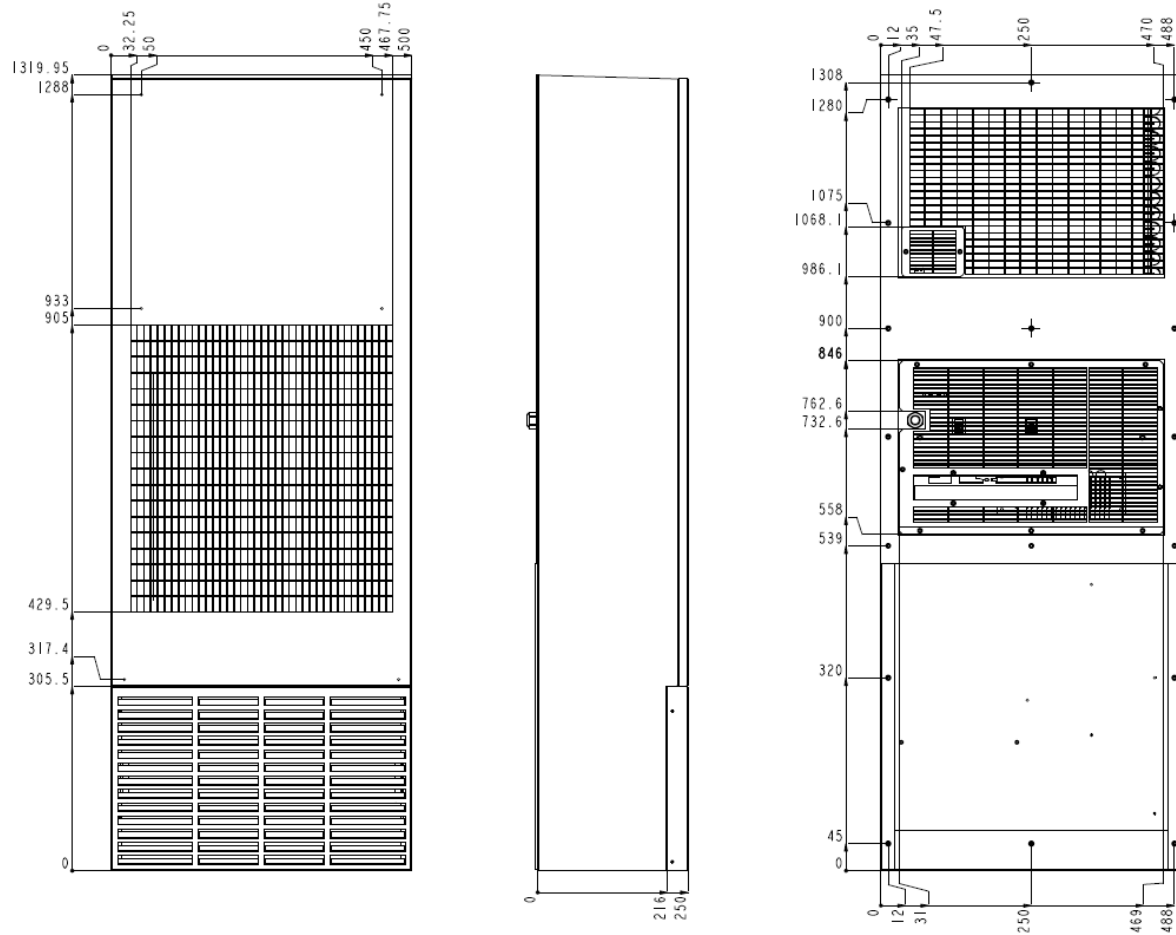


Fig: Main unit dimensions OC-4120D

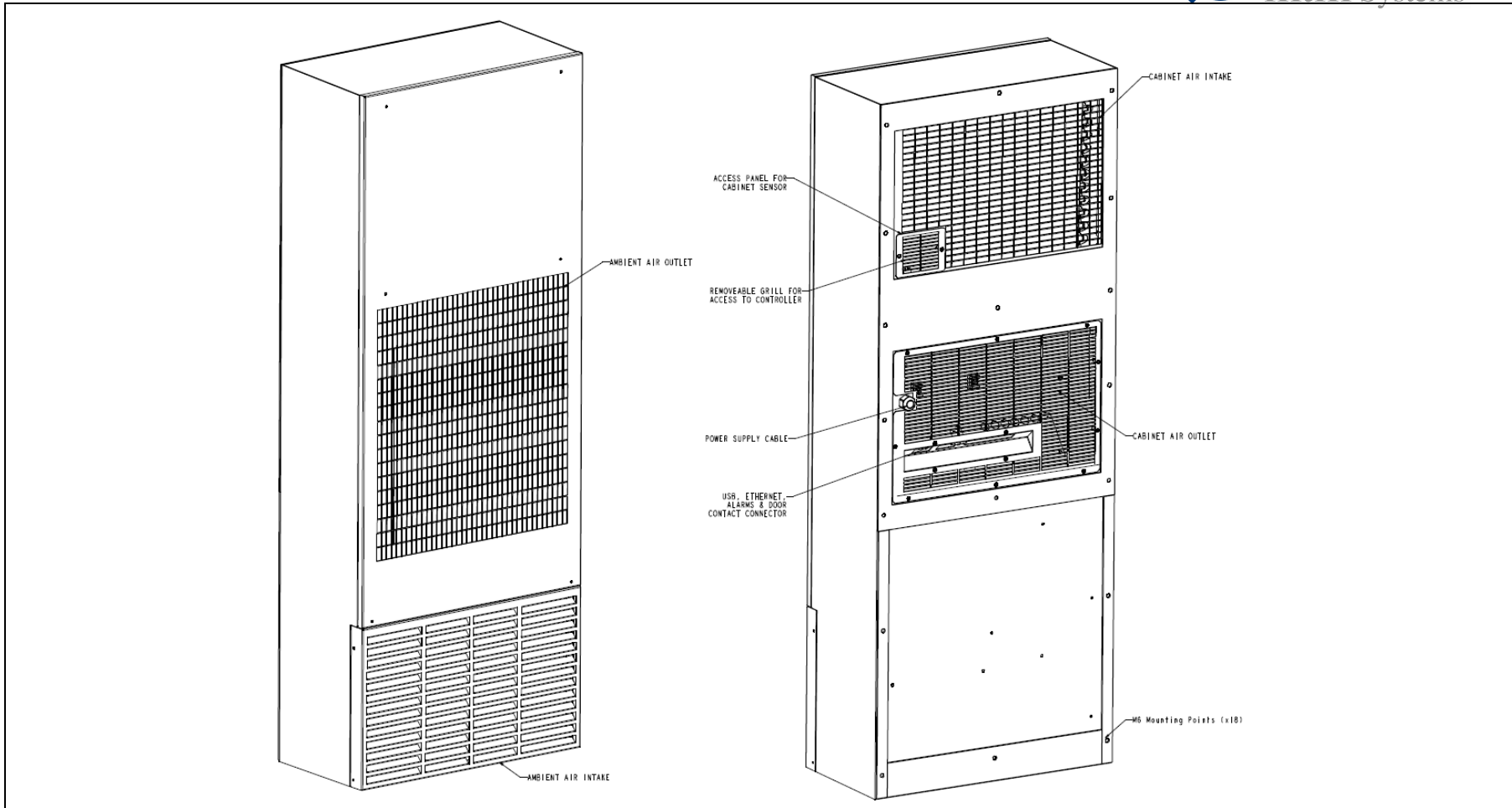


Fig: Front and rear views of the OC-4120D

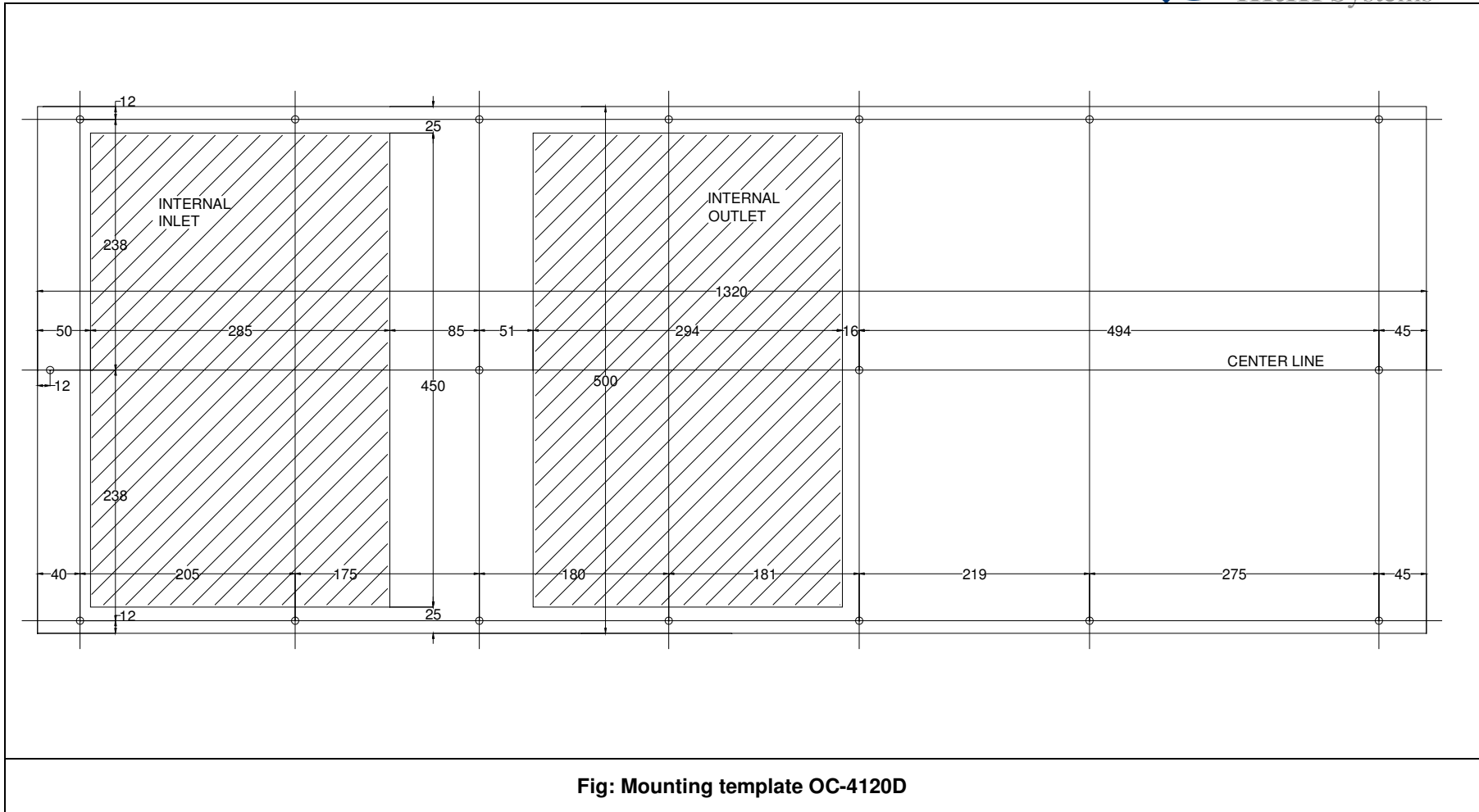


Fig: Mounting template OC-4120D

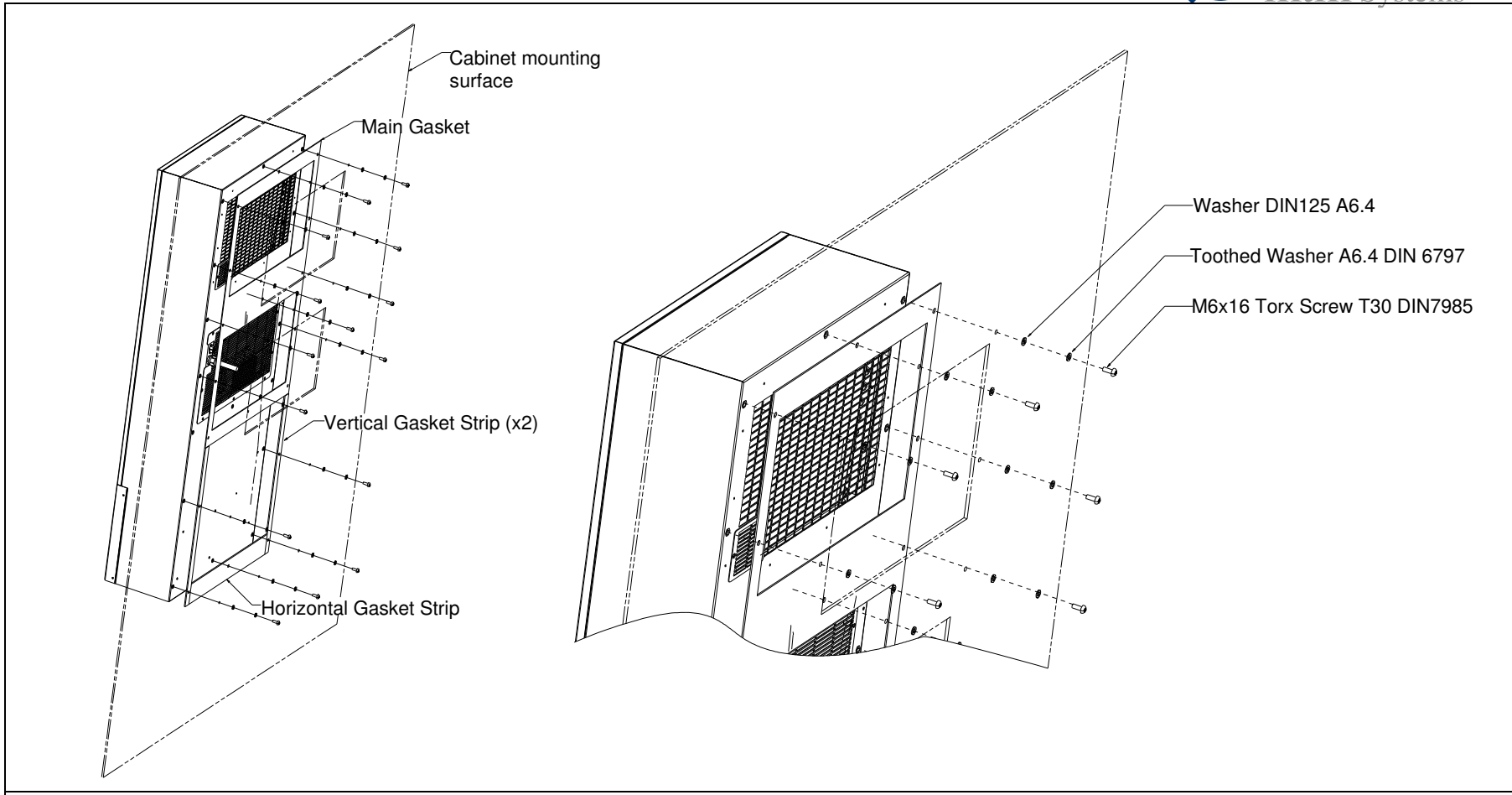


Fig: Unit Mounting

## 5. Mounting and operational start-up

**Danger:**

*Danger from electrical voltage.*

The unit must be mounted by specialist personnel (qualified electricians). The personnel must ensure that the cabinet is disconnected from the electrical supply for the duration of the mounting operation. Therefore take the cabinet out of operation, following the relevant instructions before mounting work commences.

**Attention:**

*Danger through incorrect work on the unit.*

*Only specialists are allowed to put the unit into operation.*

### 5.1. Mounting preparations



Several points must be checked before the unit can be mounted. These checks must be made to ensure safety and the trouble-free operation of the unit. These checks must be carried out with absolute thoroughness to ensure that the unit works perfectly.

#### 5.1.1. Transport damage check

On delivery the carton containing the unit must be examined for signs of transport damage. Any transport damage to the carton could indicate that the unit itself has been damaged in transit which in the worst case could mean that the unit will not function.

#### 5.1.2. Location and space requirements

The location of the cabinet must allow for sufficient air circulation to and from the unit.

**Attention**

*Damage to the unit through incorrect mounting.*

*The unit must be mounted vertically. It is therefore also important to check, with the help of a spirit-level, that the cabinet is in a horizontal position. The max. deviation from the vertical or horizontal is 7 degrees.*

#### 5.1.3. Air apertures

To provide adequate air circulation and avoid temperature layers from forming, ensure that:

- air inlet and
  - air outlet
- are not partially or completely blocked by obstructions in the cabinet .

#### 5.1.4. Sealing

To guarantee that the unit works perfectly ensure that:

- the control cabinet is completely sealed (to min. IP54 to EN 60529).
- a good seal exists between the control cabinet and the unit.

## Instruction manual

### 5.2. Mounting instructions



#### **Danger**

*Danger from electrical voltage.*

Ensure that for the duration of the mounting operation the cabinet is disconnected from the electrical supply. Therefore take the cabinet out of operation, following the relevant instructions, before mounting work begins and take all precautions to prevent premature reconnection of the cabinet.



When all mounting preparations are complete the actual mounting operation can commence.

The resistance of the ground connection between cabinet and cooling unit must be  $<0.1\Omega$ .

#### **To mount the unit:**

- Mark the centreline of the unit on the cabinet.
- Align the provided template with the centreline on the cabinet.
- Mark the cabinet as the on the provided template.
- After having checked the dimensions cut the cabinet.
- Fix the provided gaskets to the unit before fixing to the cabinet.

### 5.3. Electrical connection



#### **Danger**

*Danger from electrical voltage*

The unit should only be connected by qualified electricians. The personnel must ensure that the unit is disconnected from the electrical supply for the duration of connection work and is protected against unauthorized reconnection.

#### **Instruction**

Check that the available voltage, frequency and fuse rating are the same as those stated on the unit data label.

#### 5.3.1. Connection to the main electrical supply

The mains connection is made via a free-ended 3-core cable.

To connect the unit to the mains proceed as follows:

- Take the control cabinet out of operation in the prescribed manner.
- See the connection details on the circuit diagram.
- Note the wire colours from the table below (and/or alternative connection):

+48 V DC – **Brown**  
0 V DC – **Blue**  
Earth – **Green/Yellow**

#### **Alternative Connection:**

0V DC – **Brown**  
-48 V DC – **Blue**  
Earth – **Green/Yellow**

## Instruction manual

To connect the unit's alarm and door connector proceed as follows:

- Take the control cabinet out of operation in the prescribed manner
- See the connection details on the circuit diagram.
- Note the connections on the connectors from the following table.

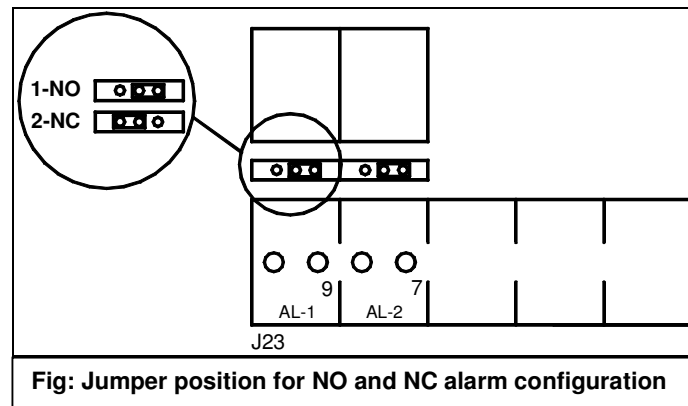
### Terminals:

J23	Terminal 9	Alarm 1, Alarm NO, Relay NC
J23	Terminal 10	Alarm 1, Alarm NO, Relay NC
J23	Terminal 7	Alarm 2, Alarm NO, Relay NC
J23	Terminal 8	Alarm 2, Alarm NO, Relay NC

J7	Terminal 1	Door switch NC-Normally closed to operate
J7	Terminal 2	Door switch NC-Normally closed to operate

The alarms are configured by default as NO. The NO alarm state refers to the condition when the unit is powered and no alarm exists. When an alarm exists or the unit is de-energized, the contacts are closed. NC relay contacts are used for the alarm. Under alarm conditions the relays are de-energized.

To change the alarm configuration to NC change the position of the jumper above the alarm connector to position 2 as shown in the figure below.



**Fig: Jumper position for NO and NC alarm configuration**

## Instruction manual

### Instruction

The radial fans have clockwise rotation.  
 Connect the unit to the mains.  
 Take the control cabinet back into operation in the prescribed manner.  
 Power consumption and start-up current are stated on the data label and under technical data.

### 5.3.2. Fault warning connection

Alarm contacts can be factory programmed as necessary. The basic configuration used is indicated in the table below. The Red LED on the controller will indicate the alarms. The operating current for alarm contacts must be less than 1A.



Alarm	Red LED	Alarm contact
None	OFF	None
High temperature	ON	AL1
Low temperature	ON	AL1
Internal fan failure	ON	AL2
Compressor failure	ON	AL2
Door contact open	ON	AL2
Thermistor failure	ON	AL2
No DC supply	ON	AL1

The fault warning contacts for temperatures in excess of the pre-set cabinet temperature is connected via terminals 9 and 10 on the connection terminal block. The default temperature is set using the potentiometer (refer to circuit diagram). The temp. adjustment range is between 25°C (left-hand stop) and 55°C (right-hand stop). When the cabinet temperature exceeds the pre-set alarm temperature the contacts 9 and 10 will close. When the cabinet temperature will fall below the pre-set alarm temperature the contacts 9 and 10 will open up once again.

To change the setting:

Using a narrow screwdriver turn the alarm temp. potentiometer on the PC-board slightly clockwise (higher) or anti-clockwise (lower). Please note that the setting for the alarm signal must be at least 5°C higher than the setting for the cabinet internal temperature. Check that the new setting meets requirements and if not repeat the above process.

If required, the temperature can be also set in the web interface (refer to web interface instruction sheet).

When an air-conditioner alarm is given please see section 7 of this manual.



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### 5.3.3. Door contact switch connection

When delivered the door contact terminals are bridged.



If required the unit can be switched on or off via a door contact switch (terminals 1 & 2).

#### To connect the door contact switch:

- Remove the bridge from terminals 1 and 2.
- Connect the door contact switch to terminals 1 and 2.
- The contact must be closed when the cabinet door is closed.

## 6. Taking into operation



### Attention

*The unit can be damaged by lack of lubricant.*

To ensure that the compressor is adequately lubricated the oil, which has been displaced during transport, must be allowed to flow back into it. The unit must therefore be allowed to stand for at least 15 min. after mounting before being connected to the mains and taken into operation.

The unit is controlled in relation to the cabinet internal temperature. A temp. sensor continuously measures the temperature of the air which is drawn into the unit from the cabinet. The required cabinet temperature for cooling operation can be set on the cabinet temperature using the potentiometer on the controller. When the cabinet temperature exceeds the set point the unit will enter cooling operation. When the cabinet temperature falls below the set point on the potentiometer the unit will stop the cooling operation and only the internal fan will operate to maintain air circulation in the cabinet. If the temperature of the cabinet rises above the set point before the compressor has been stationary for the minimum standing time (approx. 5 minutes) the unit will only start cooling operation after the minimum standing time has passed. Likewise the compressor needs to operate for the minimum running time (approx. 3 minutes) before the unit stops cooling operation. The temp. adjustment range is between 20°C and 50°C.

If required, the temperature can be also set in the web interface (refer to web interface instruction sheet).

### To adjust the cabinet internal temperature proceed as follows:

- Using a narrow screwdriver turn the cabinet temperature potentiometer on the controller slightly clockwise (higher) or anti-clockwise (lower).
- Check that the new adjustment meets the necessary requirements. If necessary repeat the procedure.

### Attention:

Danger through incorrect work on the unit and incorrect settings.

Only specialists are allowed to change the alarm and control temperature settings.



When the test button is pressed the compressor and the ambient fan will run for 120 sec. regardless of the cabinet temp. If the test button is pressed during the 120 sec. test-run, the unit will return to its normal operational mode. The test-run cannot be activated during the min. compressor shut-down time.

### Instruction:



When the unit is first taken into operation there is also a start-up delay of ca. 5 min. after the work's pre-set temperature has been exceeded for cooling operation to start if required.

Condensation formed inside the unit is drained from the bottom of the unit.



## 7. Fault finding

In case of a fault follow the following table to find a solution.

FAULT	REASON	SOLUTION
<b>Air conditioner does not start</b>	Power supply not or incorrectly connected	Connect the power supply correctly
	Temperature in the control cabinet is below the target value	Wait until the temperature target value is exceeded. The air conditioner will start by itself. If the target value of the control cabinet temperature is too high set a lower target value
<b>Air conditioner doesn't cool the air</b>	Door contact open	Close the enclosure door or bridge door contact connections.
	Compressor faulty	 The compressor must be changed. <b>This process must be carried out by the manufacturer.</b>
	Compressor protection switch has been activated	Check cooling capacity. If the cooling capacity is too low at the operating conditions find another location with lower ambient temperatures or install an additional air conditioner
<b>Air conditioner doesn't cool the air</b>	Evaporator and/or condenser are heavily soiled or blocked	The evaporator and/or compressor must be cleaned
	The cooling output of the air conditioner is too low for the heat generated by the components in the control cabinet	Check cooling capacity. If the cooling capacity is too low at the operating conditions find another location with lower ambient temperatures or install an additional air conditioner
<b>Evaporator iced up</b>	Insufficient refrigerant due to refrigerant loss through leaks in circuit	 Refrigerant circuit must be sealed and refilled. <b>This process must be carried out by the manufacturer.</b>
	The ambient temperature is far below the lower operating limit.	Place the air conditioner in an area where the temperature remains within the operating limits
<b>Heavy condensation</b>	The enclosure is not sealed	Seal the enclosure
	Fan or fan capacitor cold side defective	Replace fan and/or fan capacitor
	Enclosure door is not completely closed	Close the door
	Enclosure is not sealed	Seal the enclosure
	Incomplete seal at the contact surfaces between air conditioner and enclosure	Seal the contact surfaces and stiffen the mounting surface of the enclosure if necessary

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<b>Uneven temperature distribution in the control cabinet</b>	Enclosure air intake and outlet blocked or partially impeded by components inside	Move components or change position of air conditioner
	Enclosure volume too large for air conditioner	Check cooling capacity. If the cooling capacity is too low at the operating conditions find another location with lower ambient temperatures or install an additional air conditioner
<b>Condenser fan does not run</b>	Short circuit of the air	Change the air guidance
	Fan and/or fan capacitor defective	Replace fan and/or fan capacitor
<b>Evaporator fan does not run</b>	Fan and/or fan capacitor defective	Replace fan and/or fan capacitor

In case the problem persists please call us on tel. +49 (0) 2332 55124 – 0 or (+356) 21 659082.

**ATTENTION:**

It would be of great help in locating the fault if, before calling us the test-button on the PC-board was pressed, as this should activate both radial fans and the compressor, independent of the cabinet temperature.

## 8. Maintenance and cleaning



**Danger**

*Danger from electrical voltage.*

Maintenance and cleaning must be carried out by specialists (electricians). The personnel must ensure that for the duration of this work the unit and the cabinet are disconnected from the electrical supply and protected against unauthorized reactivation.



**Danger**

*Danger through incorrect work on the unit.*

The instructions in the cabinet manufacturer's manual must be adhered to.



**Attention**

*Damage to the unit through incorrect maintenance and repair.*

Maintenance and repair of the refrigerant circuit must be carried out by the manufacturer or another specialist.

### 8.1. Unit service and cleaning



**Danger**

*Danger from electrical voltage.*

The service and cleaning of the unit must be undertaken by specialists. The personnel must ensure that for the duration of the cleaning work the unit and the cabinet are disconnected from the electrical supply and protected against unauthorized reconnection.

**Danger**

*Danger from electrical voltage.*

**Instruction**

Never use aggressive cleaning fluids or materials. Disconnect the air conditioner from the mains.

- Remove the bottom cover by unscrewing the retaining screws on the sides.
- Check the condensor and clean if necessary.
- Check the air outlet grills to be free from dirt and clean if necessary.

## 9. Maintenance

### Attention

Only use original replacement parts when repairing the unit. This ensures that the unit functions perfectly and remains safe.

### 9.1. Radial fan replacement

The normal working life of the fan is ca. 30.000 working hours under normal conditions.  
Should a fan need replacing:



### Danger

*Danger from electrical voltage*

Maintenance work on the unit must be carried out by specialists (qualified electricians). The personnel must ensure that for the duration of the work the unit and the cabinet are disconnected from the electrical supply and protected against unauthorized reconnection.  
Disconnect the unit from the mains.

- Remove the required covers.
- Disconnect the earthing contacts.
- Disconnect the fan cable.
- Partially unscrew the four M4 nuts.
- Pull the fan out and unscrew the four M4 screws at the back of the fan.
- Mount a new radial fan, replace the 4 fan fixing screws.
- Connect the earthing contacts and the fan cable again.
- Close the unit and take it back into operation



### Attention

Damage to the unit through incorrect work.

Make sure that the cabinet fan or the ambient fan is not misplaced in the unit as they are different. Ensure that the correct polarity is maintained. The fans should have clockwise rotation.



### Instruction

Danger to the environment through unauthorized disposal.

Dispose of used parts with due regard for the environment and in accordance with environmental laws and regulations.

- Dispose of the old fan in the prescribed manner.

## 10. Transport and storage



### Attention

#### *Malfunction due to transport damage*

On delivery the carton containing the unit must be examined for signs of transport damage. Any transport damage to the carton could indicate that the unit itself has been damaged in transit which in the worst case could mean that the unit will not function.

### 10.1. Storage conditions

The unit can only be stored in locations which meet the following conditions:

- Temperature range: - 10°C to + 70°C
- Relative humidity 25°C: **max. 95 %**

### 10.2. Returning the unit



### Attention

#### *Damage to the unit through incorrect transport.*

To avoid transport damage the unit should be returned in the original packing or in a packing case and must be strapped to a pallet.

If the unit cannot be returned in the original packing please ensure that:

- A space of at least 30 mm. must be maintained at all points between the unit and the external packing.
- The unit must be firmly fixed in the packing.
- The unit must be protected by shock -resistant padding (hard foam corner pieces, strips or cardboard corner pieces).

**11. Parts supplied**

**OC-4120D**

- 1 Outdoor cabinet air conditioner
- 1 10-pole alarm female connector
- 1 2-pole male connector with bridged contacts
- 18 Screw M6x16 DIN7985 Z.PL. TORX T30
- 18 Washer A6.4 DIN125 Zinc Plated
- 18 Toothed Washer A6.4 DIN 6797 ZP
- 1 Mounting gasket main seal
- 1 Mounting gasket horizontal strip
- 2 Mounting gasket vertical strip
- 1 Hole Pattern diagram
- 1 Instruction manual
- 1 Web Interface Instruction sheet



## 12. Contacts

### **Seifert mtm Systems GmbH**

Haßlinghauser Str. 156, 58285 Gevelsberg  
Germany  
Telefon/Telephone/Téléphone: +49 (0)2332 55124- 0  
Telefax/Telefax/Télocopieur: +49 (0)2332 55124- 29  
E -mail: [info@seifert-mtmsystems.de](mailto:info@seifert-mtmsystems.de)  
[www.seifert-mtmsystems.de](http://www.seifert-mtmsystems.de)

### **Seifert mtm Systems Inc.**

75 Circuit Drive, USA North Kingstown RI 02852  
United States of America  
Telefon/Telephone/Téléphone : (+1) 401 294 6960  
Telefax/Telefax/Télocopieur : (+1) 401 294 6963  
E -mail: [info@seifertinc.com](mailto:info@seifertinc.com)  
[www.seifertinc.com](http://www.seifertinc.com)

### **Bayern, Baden-Württemberg, Rheinland-Pfalz**

Daniel Schrankenmüller  
Verkauf/Sales  
Vorstadtstr. 26, 78713 Schramberg  
Telefon/Telephone/ Téléphone : (+49) 7402-9384922  
Telefax/Telefax/Télocopieur : (+49) 7402-9384933  
E-mail: [schrankenmueller@seifert-mtmsystems.de](mailto:schrankenmueller@seifert-mtmsystems.de)

### **Seifert mtm Systems (Malta) Ltd.**

HF09/10, Industrial Estate, Hal Far BBG3000  
Malta  
Telefon/Telephone/ Téléphone : (+356) 21 659082  
Telefax/Telefax/Télocopieur : (+356) 21 659083  
E-mail: [info@seifert-mtmsystems.com](mailto:info@seifert-mtmsystems.com)  
[www.seifert-mtmsystems.com](http://www.seifert-mtmsystems.com)

### **IPT Seifert mtm Systems Korea**

#303, Namdong Sanggong B/D  
632-1 Gojan-Dong, Mandong-Gu  
Incheon, 405-817 Korea  
Telefon/Telephone/Téléphone : (+82) 70-8254-7709  
Telefax/Telefax/Télocopieur : (+82) 32-817-8709  
E -mail: [yongjin2528@hotmail.com](mailto:yongjin2528@hotmail.com)

### **Seifert mtm Systems AG**

Wilerstraße 16, CH – 4563 Gerlafingen  
Switzerland  
Telephone : (+41) 32 67 53 55 1  
Telefax : (+41) 32 67 54 47 6  
E-mail: [info@seifert-mtmsystems.ch](mailto:info@seifert-mtmsystems.ch)  
[www.seifert-mtmsystems.ch](http://www.seifert-mtmsystems.ch)

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