CR240 USER MANUAL

How to install, set up, operate and service
your Cotes CR240 dehumidifier

Original instructions

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IMPORTANT INFORMATION

Contact information

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Warranty conditions

The Cotes factory warranty is only valid if a documented programme of service and preventive maintenance has been carried out.

Maintenance must be carried out according to the instructions in the SERVICE AND MAINTENANCE section. Documentation for this must be in the form of a written log/journal, with attested entries.

All spare parts must have been purchased from Cotes or an authorized Cotes Partner.

Copyright

Compliance with directives and standards

- Machinery Directive 2006/42/EC
- Eco-design 327/2011 directive 2009/125/EF as regards the eco-design fans driven by motors with input power between and 125W to 500kW
- EMC Directive 2014/30/EU
- RoHS 2011/65/EC
- EN60204
- EN60335

Technical information

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Service and maintenance support

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Safety warnings

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

This appliance is intended to be used by expert or trained users in shops, in light industry and on farms, or for commercial use by lay persons

1 / ABOUT THIS HANDBOOK

1.1 GENERAL BACKGROUND

This is the installation and service handbook for your Cotes dehumidifier.
You should read the whole handbook before installing and/or starting the dehumidifier unit for the first time. It is important that you and your colleagues are familiar with the correct operating procedures and all precautionary safety measures, in order to avoid any damage to the surroundings, materials or installations, as well as to prevent any personal injury.

This handbook is mainly intended for use by technicians who install and operate this Cotes dehumidifier unit, who carry out preventive maintenance and who replace defective parts.
Anyone using Cotes dehumidifier units, or whose responsibilities include supervising their operation, will also benefit from reading this handbook and from consulting it as a practical help should the need arise.

1.2 SYMBOLS USED IN THIS HANDBOOK

This tells you to perform a particular action

Important to note because items in the dehumidifier can cause injury or affect people's health

You need to pay special attention to this

NOTE

It is each operator's responsibility to read and understand this manual and other information and to employ the correct operating and maintenance procedures.

2 / ABOUT THIS DEHUMIDIFIER

2.1 INTENDED USE

Intended use of dehumidifier

The dehumidifier is designed for dehumidifying/conditioning atmospheric air only.
The air is filtered with a G4 filter.

The dehumidifier must be placed horizontally on the floor or on a table, and it should rest on the four rubber supports.

The unit is intended for use in residential, commercial and industrial environments.

Operating conditions

NOTE

The operating conditions of the dehumidifier must be respected.

For process air supplied to the dehumidifier the following limit values must be respected:

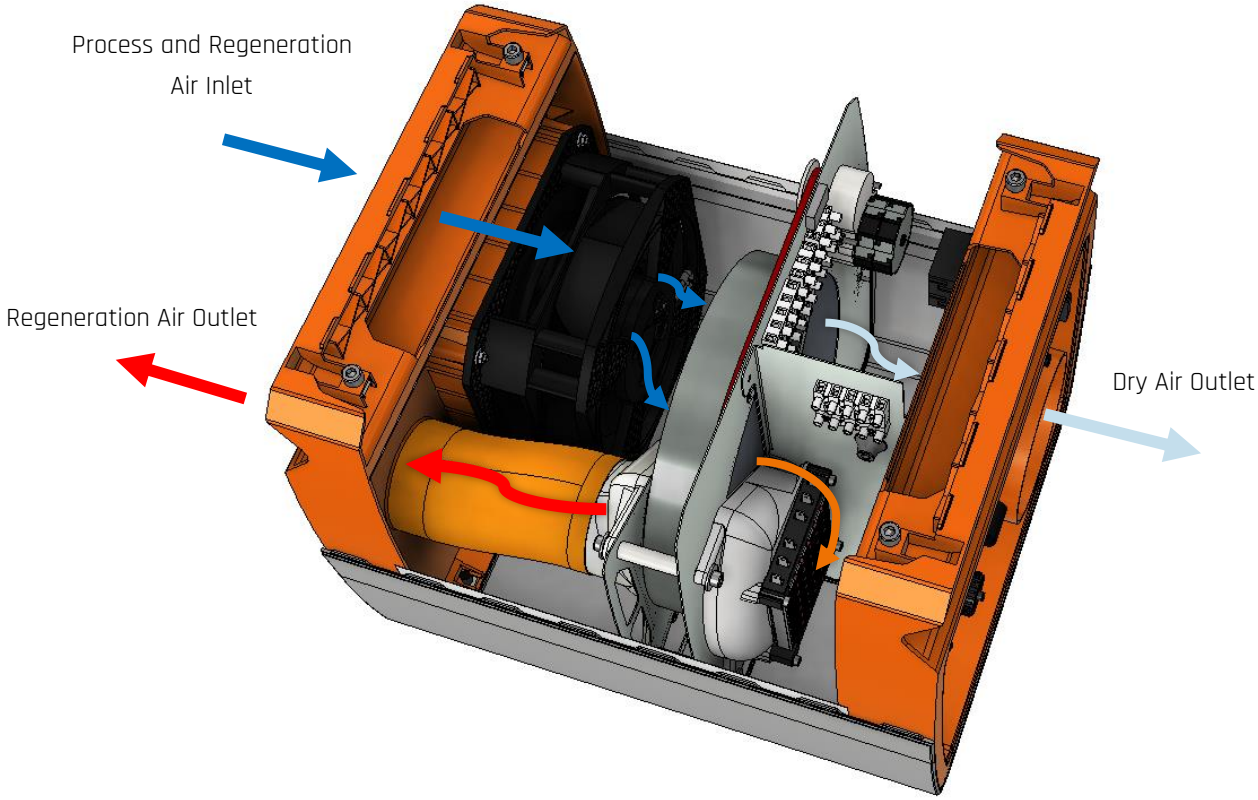
- Max. humidity ..... 100% RH
- Min./Max. temperature ..... -20°C/40°C
- Max./min. pressure ..... ambient +/- 300 Pa

Foreseeable misuse

Unless specifically stated in the user manual or in a separate agreement with Cotes or a Cotes Partner, this dehumidifier must not be used for the following purposes:

- Conditioning of gases other than atmospheric air at ambient pressure.
- Conditioning air contaminated with any chemical or other aggressive/corrosive elements including salt (sodium chloride).
- Conditioning explosive or flammable air – including using the dehumidifier in ATEX-classified zones.

2.2 THE PRINCIPLE OF OPERATION



The effect of Cotes adsorption dehumidifiers basically stems from the action of two flows of air. In this case the air is controlled by one fan, and the air is departed later in the drying process.

The drying process

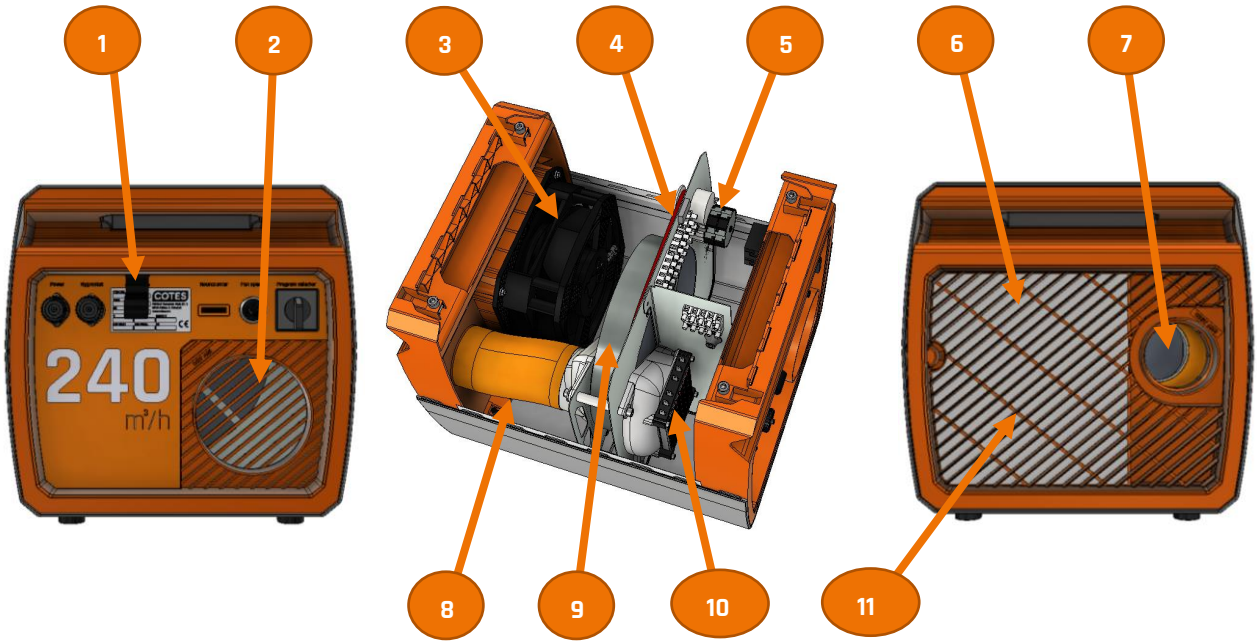
The incoming moisture-laden flow of air enters one side of the cabinet and gets filtered by an air filter. The air then passes through a slowly turning rotor whose inner surfaces are coated with desiccant silica crystals that attract the water molecules passing through. When the moist air passes through the rotor, water molecules are adsorbed and lodge in the pores on the surface of the silica gel. This means the air leaves the rotor containing less moisture (humidity) than when it entered. And because the adsorption process releases energy to the air, the temperature increases during the process. The air is then departed in to two separate airflows – Process air and Regeneration air. Process air is the dry air.

The regeneration process

The regeneration air is then heated by heating element to reduce its relative humidity. On its way through the rotor, this heat evaporates the moisture previously adsorbed by the silica crystals in the rotor. The resulting water vapour now leaves the dehumidifier in the outgoing regeneration air.

The two air flows are fixed, and the rotor turns - this gives an automatic process of simultaneous water adsorption and water extraction

2.3 MAIN COMPONENTS



1. Cable strap
2. Dry air outlet – 125 mm female
3. Air fan
4. Drive belt
5. Gearmotor for rotor
6. Filter (Standard - G4)
7. Regeneration Air Outlet – 80 mm female
8. Flexible hose
9. Desiccant rotor
10. Heater
11. Filter lid

See section 6 / SERVICE AND MAINTENANCE for information on how to access main components.

Access for service/repair

To access components inside the machine, remove the top cover.

The top cover is fastened with 4 screws on the top of the device.

3 / HANDLING AND STORAGE

Incoming goods inspection
Cotes recommends that customers:

- Inspect incoming goods for visible damage
- Photograph goods with obvious or suspected damage
- Verify that the incoming goods comply with either the delivery note or sales order
- If the delivery is found to be non-compliant, a written objection must be made immediately to the delivery driver and the delivery company
- The delivery driver must countersign any objection letter
- Provide a copy of any objection letters to the delivery driver and keep the original.

If you do not inspect the delivery, but accept and sign the transporters receipt, then you will be liable to any product damage or missing products.
If you do not sign the transporters receipt, but still are accepting the transporters unloading of his deliveries, you are also liable to any product damage or missing products.

Handling
When ordering multiple dehumidifiers, they can be delivered on a pallet.
If the dehumidifiers have been delivered on a transport pallet, they can be moved using a forklift

Cotes dehumidifiers are built to be very durable so there is no need for any special handling other than normal reasonable care and attention.

Do not stand on it or use it as a stool/staircase!

Storage conditions

NOTE
The storage conditions of the dehumidifier must be respected.

For storing the dehumidifier, the following conditions must be respected:

Relative humidity	0–90%
Temperature	-25°C to 55°C

It is only possible to deviate from these ranges if such deviations were specifically mentioned when the order was placed, and special considerations have been incorporated into the unit in order to deal with this.

Removing the packaging
The packaging must be disposed of in accordance with applicable regulations.
Please dispose of this packaging responsibly and recycle it if possible.

4 / INSTALLATION AND COMMISSIONING

4.1 HOW TO INSTALL THIS DEHUMIDIFIER

Safety precautions

NOTE

Electrical work should only be carried out by an authorised electrician, and in accordance with national wiring regulations.

Electrical fuse size in the connected electrical installation:
Min. 10 A / Max. 16 A.

Any duct connections to and from the dehumidifier should only be carried out by authorised ventilation installer. Also only use appropriate power cable and accessories made for this dehumidifier.

Where to mount this dehumidifier

NOTE

The dehumidifier must be placed indoors in stationary installations and protected against rain and water on the cabinet.

The dehumidifier should be installed indoors, placed on a horizontal based surface.
It should be placed on the four rubber supports underneath the cabinet.
Also the dehumidifier must not be mechanically affected by other adjacent structures.
Minimum distance to other structures: 10 cm

Installation above sea level: Max. 3000 meter.

Where not to mount it

Unless it has been arranged with Cotes and special considerations have been made, the unit should not be placed outdoors.
The unit should not be placed inside an office or in other locations where the sound pressure level must be kept to a minimum.

Connections needed – electrical

NOTE

Make sure power is switched off before installing and servicing.

First, make sure that the selector switch is in position 0.
Now the power cable can be connected to the mains.

Connections needed – ductwork

NOTE

To ensure low pressure drop and low sound pressure levels, please request assistance from a company that specializes in ventilation systems.

NOTE

The regeneration air outlet duct should be directed at least a few degrees downwards to allow for drainage of the condensed water.
If this is not possible, drill a ø6mm hole in the lowest part of the duct.

The main air to be dried is normally drawn from the room and through the main air filter. As standard, the dehumidifier is delivered with a frame covering the filter.

If the installation is for normal room dehumidification at 50 - 100% RH, it is acceptable for the dehumidifier is free blowing (no regulation). If lower dew points are desired, the dry air flow must be adjusted with a damper. The regeneration air inlet should be equipped with a Ø80mm duct and a built-in filter. The regeneration air outlet should be equipped with Ø80mm duct directed at least a few degrees downwards to allow for drainage of the condensed water. If this is not possible, a Ø6mm hole should be drilled in the lowest part of the duct.

In order to adjust the regeneration air flow a damper must be installed on the regeneration air outlet.
If not, the regeneration air flow will – in most cases – be too high, making it impossible to reach the desired temperature for the regeneration air and thus making the unit less efficient.

In general, ducts of the same size or larger as those placed on the dehumidifier should be used.

4.2 HOW TO COMMISSION THIS DEHUMIDIFIER

NOTE

Only trained/authorised electricians are allowed to carry out any work required in the electrical parts of this Cotes dehumidifier.

When the cover of the electrical box is open, the power supply must be switched off at the mains switch.

Commissioning procedure

1. Check the electrical installation before starting the dehumidifier, switch on the mains switch.
    - 230V – Check the voltage between the terminals L1, N
    - Is the ground cable connected, and of the correct specifications?
    - Is any hygrostat (if fitted) correctly connected?
2. Check the connected duct system
    - Is the recommended damper installed in the regeneration air outlet duct?
    - Is the optional damper installed in the process air outlet duct?
    - Do the regeneration air outlet ducts drain away from the dehumidifier, to make sure that any condensed water flows away?
    - If the regeneration air outlet does not drain away from the dehumidifier, check whether there is a 6 mm-diameter hole drilled in the lowest part of the duct, so that any accumulated water can drain away.
3. Suggested damper positions/air flow settings at commissioning
    - Dampers/settings should be set in the following positions.
        - Damper at process air outlet: Fully open.
        - Damper at regeneration air outlet: Fully open.
4. Once the dehumidifier is operating, adjust the air flows.

How to adjust air flows

NOTE

Check the regeneration air duct for free blowing and draining of the condensed water.

The dry air flow can be adjusted when a damper Ø125 is installed in the dry air outlet duct.
If only a short duct is installed, the opening should be reduced on the damper to obtain the nominal air flow.
The dry air flow should be adjusted to the nominal value for obtaining data from the capacity diagram.

The regeneration air flow must be adjusted with a damper installed in the regeneration air outlet.
Start-up with the damper in the open position and close it until the Ammeter indicates 4,5A (at 230V).

Check the value again after approximately 15 minutes of operation, one more adjustment might be necessary. Regeneration air flow must always be controlled. Check the regeneration air duct for allowing free blowing of the regeneration air. Check that the regeneration air duct is installed draining from the dehumidifier.

Check the air flows using a suitable instrument (pitot pipe/thermo-anemometer or similar) in the duct. Use a standardised tool for measuring the velocity according to specifications.

With the electrical settings and air flows are adjusted, the dehumidifier will then operate automatically by means of the internal control - and safety functions – controlled by an external hygrostat.

Once the commissioning procedure has been completed and the air flows have been adjusted, the dehumidifier will operate automatically thanks to the internal control, including the safety function, controlled by an external hygrostat.

Regulations by hygrostat

The dehumidifier is prepared for external regulation by a hygrostat. To be connected the hygrostat connector, using the corresponding male socket, part no 112002 (option). Hygrostat ex Cotes DR10.

Electric connection

The dehumidifier CR240 is connected 230V, 1PH+N+PE. The dehumidifier is supplied with build in socket for different cable length and plug for the power supply. This cable is connected to the left socket (Power) on the control panel. Connection of hygrostat, see "Regulations by hygrostat", above, on this page.

Power consumption & airflows

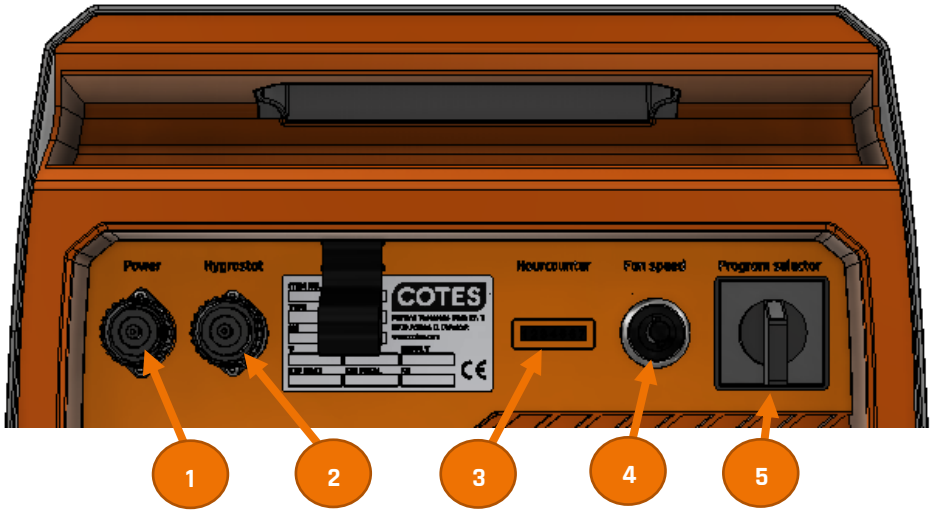
NOTE

Do not touch the electric heater when switched on, as it is an uninsulated live wire.

The energy consumption of the PTC-heater is depending on the air flow passing through. At the nominal regeneration air flow of 40 m3/h the energy consumption of the heater is 966W, which is equivalent to indication of 4,5A on the Ammeter (whole machine consumption).
Air flow and energy consumption are regulated by a damper installed in the regeneration air duct system.
NOTICE: the energy consumption of the electric heater in the first seconds is up to 8,6A

5 / OPERATION

5.1 CONTROL PANEL AND ELECTRICAL INTERFACES



1. Power cable connector
2. Hygrostat connector
3. Hour counter
4. Potentiometer (Fan adjustment)
5. Program selector switch

5.2 HOW TO OPERATE THIS DEHUMIDIFIER

The CR240 is designed for maximum dehumidification and the standard setting is that it runs all the time. This configuration is as simple as possible, therefore there is no dehumidification management installed.

Starting and stopping the dehumidifier

NOTE

Avoid frequent switching on / off the selector switch as this may damage the contact element or the connected hygrostat.

The dehumidifier is started and stopped using the selector switch. The selector switch has four positions:

- Man = Manual, continuous operation
- 0 = Switched off
- Auto = Automatic, operation with connected hygrostat
- Auto + Fan = Automatic, operation with connected hygrostat and fan always on.

Turn the selector swich to the appropriate position to start the dehumidifier in the selected operating mode.

When the selector switch is set to 0, the machine is turned off and all components are without power.

6 / SERVICE AND MAINTENANCE

6.1 HOW TO SERVICE THIS DEHUMIDIFIER

Safety instructions

WARNING

Before opening the dehumidifier, make sure that the electric power is switched off on the main switch (or pull the plug!).

Before opening the dehumidifier, make sure the power is turned off at the mains before you open any cover of the dehumidifier. Otherwise, there will be a risk of electric shock. Also be aware that the heater element may be hot if the lid is removed right after the dehumidifier is turned off.

Service and maintenance work on this dehumidifier

Cotes designs its dehumidifier units so that they are as robust as possible, and only need a minimum of service and maintenance. None of the components require lubrication or adjustment.
The only maintenance work you need to do is listed below.
Service area must be clear at all times. Diagrams and manual must be kept near the machine.
Machine will automatically start-up in case of power loss and recover of electricity.

Service and maintenance in wind turbine installation

Only three things should be done during normal operation and following the normal service intervals for installation in the nacelle / tower of a wind turbine.:

- Replace air filters.
- Check the rotation of the rotor.
- Check the power consumption of the electric heater (reading 4,5A on the Ammeter, during operation).

If the rotor rotates during operation, and the energy consumption of the complete machine shows app. 4,5A, you can be almost sure that the dehumidifier is operating at an optimum.
We nevertheless recommend some periodic verification of the entire dehumidifier, to see if all internal functions are OK and checking of cables to be well fixed, and for damage of the insulation.

At least once a year or more frequently as needed

Check or replace the air filter.

Once a year

We recommend the following annual checks.

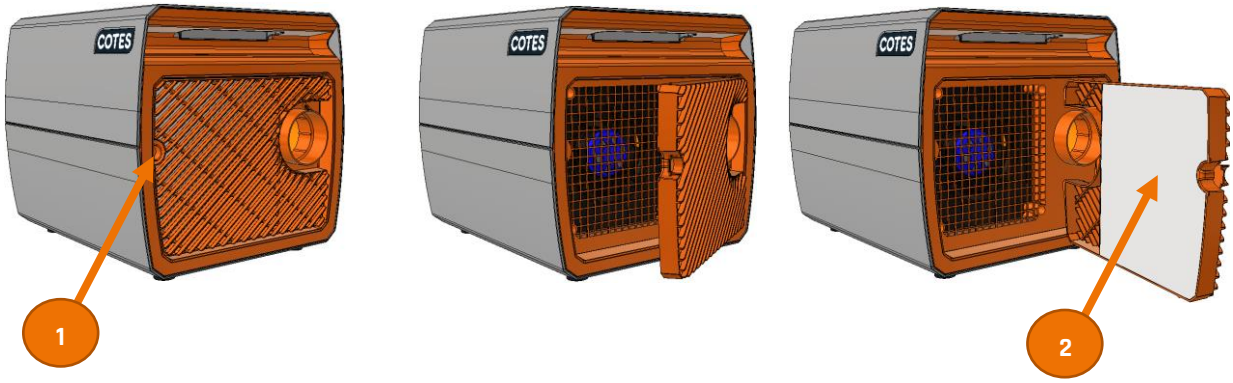
- Check that the fans are working (by listening to check if they are turning).
- Check the working hours of any component inside. See time-to-change limits table below.
- External humidity sensor should be calibrated or replaced (with calibrated instrument).
- Check the inside of the cabinet for any signs of dirt or corrosion. Check that the drive belt for the rotor is still tight and that no parts of it are too worn or close to the breaking point.
- Check that the insulation on all electrical cables is intact, with no mechanical or heat damage.
- Check that the insulation on the electric heater is intact.
- Check that all cables attached to the dehumidifier are properly attached and all components are intact.
- Test that all electric components are working as intended – for example by following the instructions in section 4.2 HOW TO COMMISSION THIS DEHUMIDIFIER.

Table 1 Time-to-change limits

COMPONENT	TIME-TO-CHANGE LIMIT
Air filter	Depends on the working environment. Specified for 8,700 hours under normal conditions
Air fan	30,000 hours
Gearmotor for rotor	25,000 hours
Electrical heaters	50,000 hours
Drive belt for rotor	25,000 hours
Rotor	50,000 hours

Air filter replacement

Access to the filter is done by tipping the finger tap (1) to the right and remove the filter lid. Once accessed the filter (2) can be removed and replaced. The filter can be replaced without turning the dehumidifier off, but it is easier when turned off. Replacement filter (no. 650009) fits into the shape of the filter lid. When reattaching the filter lid make sure the lid is proper installed. No unnecessary force should be used, but the lock should be pressed back in to place to lock the filter lid.



Air fan replacement

To replace the fan, disconnect the fan electrical connectors, and then unscrew the screws securing the fan. The screws (4 pcs) are located inside the air filter box and can be accessed from the outside by removing the filter cover. For easier access remove the 2 rubber feet's that holds the fan section. Then the fan section can be separated from the bottom shell.

Rotor, drive belt, gearmotor and electrical heater replacement

To replace the rotor, drive belt or gear motor, but also the electrical heaters, you need to:

1. Disconnect the flexible hose from the Rotor section and the Fan section.
2. Disconnect the ground connection, 1x power, 1x Selector, 1x Potentiometer, and 2x fan - connectors
3. Lift up the complete rotor section and place it on a flat horizontal surface.
   Now all components are easily accessible for replacement.

Reassembly of the dehumidifier

Reverse the workflow and be observant when refitting the rotor section back in the bottom shell. Take care that the sheet metal is correct fitted in to the bottom rib, and ribs on the control panel, and grabs the plastic part on each side. No unnecessary force should be used.

When refitting the lid, take care that the lid does not grab the "Air trap foil" placed on the inside of the bottom shell.

6.2 TROUBLESHOOTING

Before contacting the Cotes Technical Support, please review the list of possible problems below.
The list is helpful in identifying faults that are easy to remedy without the assistance of qualified personnel.

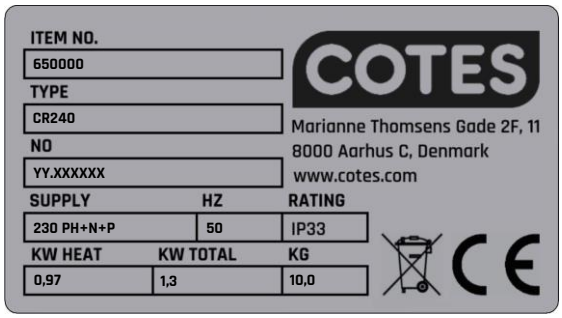
Table 2 Troubleshooting

PROBLEM	POSSIBLE CAUSE	SOLUTION
The dehumidifier does not start when connected to the power supply.	1. The external fuse has turned off. 2. The external hygrostat has switched off. This is a normal situation when the desired relative humidity is obtained. 3. The internal fuse has turned off.	1. Check the external fuse. 2. Adjust hygrostat to the lowest value. The dehumidifier should start operating. Adjust again to the desired humidity. 3. Replace the internal fuse.
Desired humidity is not obtained	The problem may be the dehumidifier - or other parts of the entire installation (airtightness, hygrostat ...).	1. Check that the fans are moving air. If not, replace the broken fan. 2. Check that the rotor is turning as intended. If not, replace the gearmotor. 3. Check that the dry air outlet is warmer than the inlet. 4. Check that the regeneration air outlet is warmer than the inlet by approx. 40-60 °C depending on temperature conditions of inlet. 5. Check that the value on the ammeter is approx. 4,5A. If fans and rotor are working, replace the heating element.

APPENDIX 1 – TECHNICAL DETAILS

SERIAL NUMBER/IDENTIFICATION

The nameplate with the serial number of this specific model is located on the control panel of the dehumidifier.



Serial number example:
22.12345

12345 = Serial number
22 = Year of production

SPECIFICATIONS

Please note that specifications and controls given in this handbook are in some situations approximate.

Table 1 Technical data

SPECIFICATIONS		
Dry air, free blowing	m^3/hour	300
Dry air, nominal	m^3/hour	240
Regeneration air, nominal	m^3/hour	40
External pressure, dry air, nominal	Pa	75
External pressure, regeneration air, nominal	Pa	150
Capacity at 20C, 60% RH	Kg/24h	19,2
Power consumption, Nominal	kW	1,04
Power consumption max., Free blowing	kW / (A)	1,3 / (5,7)
Voltage/Phases	V / Ph	220-230 / 1PH+N+PE
Internal thermal fuse	°C	84
External fuse in connected installation	A	Min. 10 / Max. 16
Type of distribution system		TN-S
IP rating (With both outlet ducts connected)		IP33

STANDARD SPARE PARTS

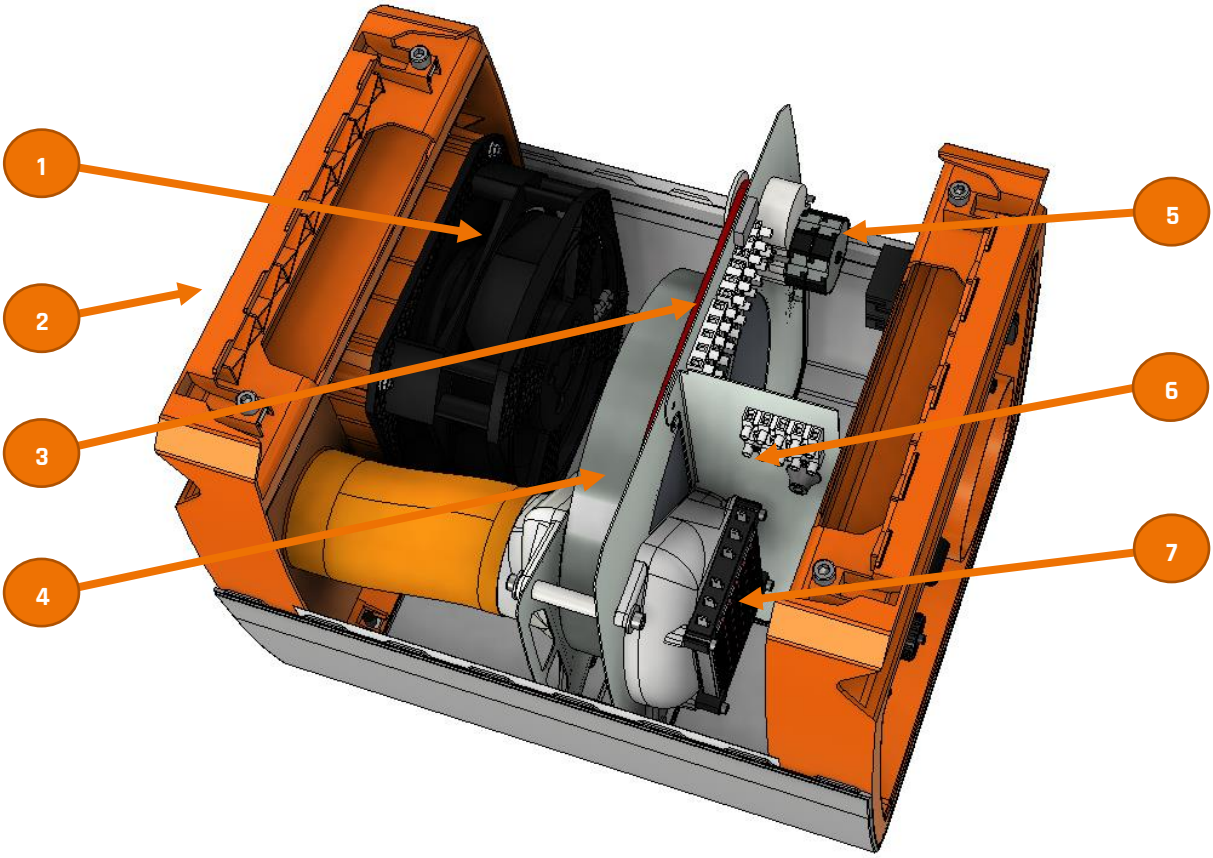


Table 2 Standard spare parts

	SPARE PART	ARTICLE NUMBER
1	Air fan (Service pack kit)	777434
2	Air filter - Not visible (Service pack kit 10 pcs.)	777417
3	Drive belt for rotor (Just the belt)	132104
4	Rotor (Just the rotor)	124060
5	Gear motor for rotor (Service pack kit)	777471
6	Internal thermal fuse (Just the fuse)	650023
7	Electrical heater (Just the heater)	111457

MEASUREMENTS

Standard variants

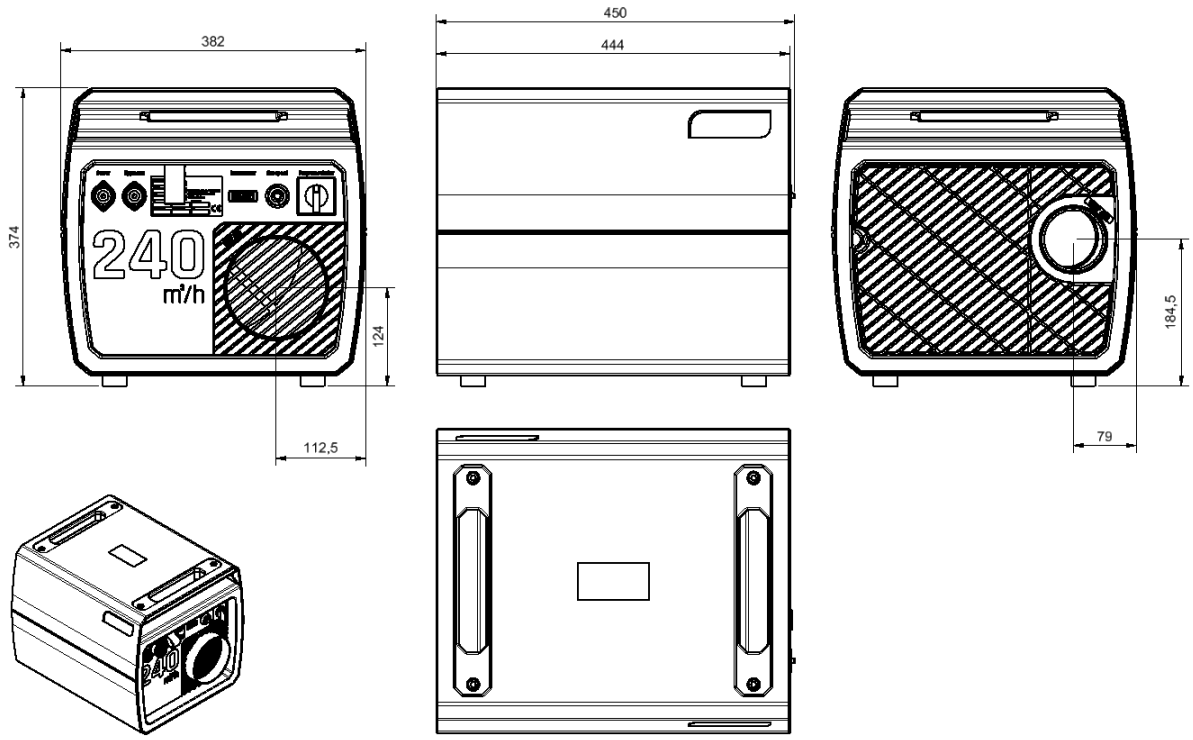


Table 3 Measurements

MEASUREMENTS		
	Model	CR240
W x D x H cabinet	mm	444 x 382 x 374
W x D x H total	mm	450 x 382 x 374
Process and regeneration air inlet	mm	202x208
Process air outlet (Female)	mm	Ø125
Regeneration air outlet (Female)	mm	Ø80
Weight (without power cable)	kg	10
Sound level (Nominal free blowing / Max. free blowing) @ 1 meter	dB(A)	59 / 67

APPENDIX 2 – OPTIONAL ACCESSORY

DR10 HYGROSTAT

Product info sheet
Room humidistat
with Polyga® measuring element **DR10**
with adjusting knob inside the housing

Type Survey

Type	Order no.	Type of contact
DR10 10A		changeover contact: 1 x max. 10 A

Technical Data

measuring element ..... Polyga®-measuring element, water resistent
control range ..... 40...90%rh

breaking capacity
max. 250VAC and
0,1 ... 5A ohmic load for dehumidifying
0,1 ... 2A ohmic load for humidifying
0.1 ... 1A for inductive load (power factor >0.8)
lifetime ..... > 6.000 breaking cycles
Please observe the notes on voltage.

optional microswitch with gold contact
breaking capacity
max. 48 VAC and
1...100 mA

optional microswitch up to 10 A
max. 250VAC and
0.1 ... 10A ohmic load for dehumidifying
0.1 ... 3A ohmic load for humidifying
0.1 ... 1.5A for inductive load (power factor >0.8)

allowable ambient temperature ..... 0...60°C
air-speed ..... 0.2...8 m/s
installation altitude ..... ≤ 4.000m above sea level
influence of temperature
ref. to 23 °C ..... ≤ +/- 0.2 % r.h. / K
typ. response time t_{50} at v=2m/s 1.2min
fixing ..... slots in housing base
mounting position ..... preferably ventilation slots at right-angles to wind direction
contacting ..... connecting terminals in the case

applied directives / standards
low-voltage directive 2014/35/EU
EMC directive 2014/30/EU
DIN EN 60730-1:2012-10
DIN EN 60730-2-13:2008-09

action 1.C.L
rated impulse voltage ..... 4 kV
ball indentation test for temperature ..... 92°C
housing ..... solid plastic, light grey
protective system IP20
degree of pollution 2
dimensions 85x55x36mm
weight ..... approx. 60 g

Description of the humidistat

The humidity measuring element which is manufactured by Galltec under the name Polyga®, consists of several plastic fabric bands each with 90 individual fibres with a diameter of 3 µm each.The fibres are provided with hygroscopic characteristics by a special process. The measuring element adsorbs and desorbs moisture. The effect, swelling predominantly in longitudinal direction, is transmitted via a lever system to a microswitch with a small switching distance. The measuring element responds to the change in air humidity. It is possible to adjust the lever system by setting the adjustment knob so that the microswitch is actuated when the set air humidity is reached.

The fan shaped measuring element is accomodated inside the housing and must be protected against coarse dust, dirt and water. The humidistats are designed for pressureless systems. The installation location must be selected so that condensed water cannot enter the inside of the housing. The installation position preferably with ventilation slots at right-angles to wind direction.

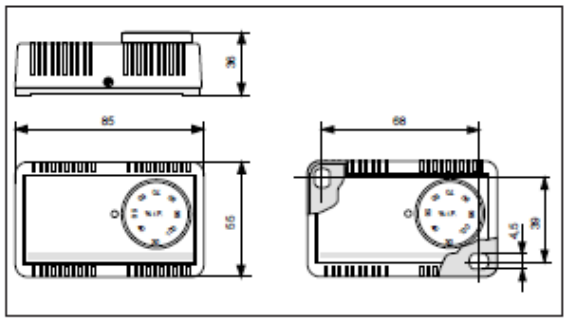
Application

The humidistat type **HG Mini** is used as an on-off controller to control the relative air humidity. It can be used to control air humidifiers and dehumidifiers in offices and computer rooms. Other areas of use are storage of foodstuffs and luxury foods, cooling rooms for fruit and vegetables, greenhouses for gardening use, the textile industry, the paper and printing industry, the film industry and hospitals.
The room humidistat **HG Mini-i** is designed so that the adjusting knob and the scale are inside the housing. This makes unauthorized manipulation by third parties more difficult.

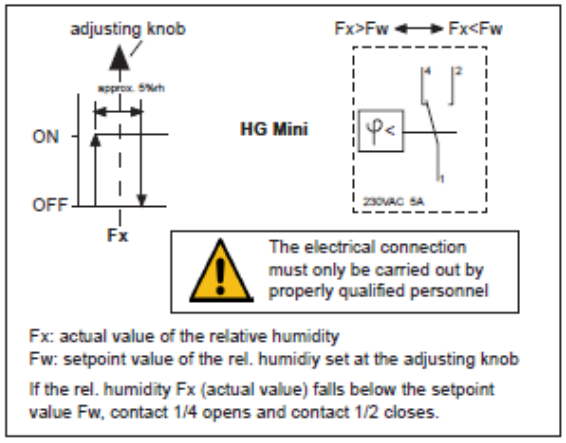
Notes on voltage

The measurement location of the humidity controller should be selected such that there is no build-up of condensate on or in the device. This applies particularly for operation with a voltage higher than 48V. If the voltage is higher, there is a risk of voltage arcing in the event of water condensation on the microswitch or connecting terminals which might destroy the controller. In the case of voltage below 48V, the humidity controller can be used up to 100%rh.

Dimensions diagram

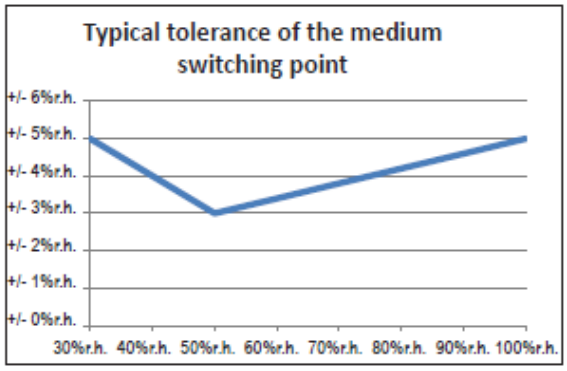


Slot diagram



Fx: actual value of the relative humidity
Fw: setpoint value of the rel. humidiy set at the adjusting knob

If the rel. humidity Fx (actual value) falls below the setpoint value Fw, contact 1/4 opens and contact 1/2 closes.



1-point-adjustment at 48 % r.h. / 23 °C
Long-term drift: ≤ ±1%r.h. p.a.

Typical switching differential with typical tolerance

Setpoint value humidity	Switching differential	Tolerance
50 % r.h.	5 % r.h.	+/- 1,5 % r.h.
60 % r.h.	4 % r.h.	+/- 1,5 % r.h.
70 % r.h.	4 % r.h.	+/- 1,5 % r.h.
80 % r.h.	3 % r.h.	+/- 1 % r.h.
90 % r.h.	3 % r.h.	+/- 1 % r.h.

Mounting

has to be carried out by properly qualified personnel

- The humidistat must not come into direct contact with water, e.g. splashed water when cleaning the climatic chamber etc.
- The mounting location should be chosen so that a representative measurement of the air humidity can be guaranteed, i.e. the humidity readings at the mounting location should correspond to those in the room as far as possible.
- The humidistat should be exposed to the flow of air.
- When mounting the humidistat on a patress, avoid external air getting onto the humidity measuring element of the humidistat by sealing it appropriately.

Cleaning instruction

1. Disconnect the device from the power supply

2. Remove the cover. Clean the cord shaped measuring element using a soft brush and clean water. Do not use a detergent as it cannot be dispersed.

It is important that no water is allowed to get onto the other components, particularly microswitches, terminals or printed circuit boards.

3. Air drying. Do not use warm or hot air (hair dryer).

Maintenance

The measuring element is maintenance-free in pure ambient air. Aggressive media containing solvent can cause measuring errors depending on the type and concentration. Deposits which eventually form a water-repellent film over the measuring element are harmful (such as resin aerosols, lacquer aerosols, smoke deposits etc.).

Physical influence of temperature on the relative air humidity

at a temperature fluctuation of ±1K referred to various room temperatures.

	10°C	20°C	30°C	50°C
10%rh	+/-0,7%rh	+/-0,6%rh	+/-0,6%rh	+/-0,5%rh
50%rh	+/-3,5%rh	+/-3,2%rh	+/-3,0%rh	+/-2,6%rh
90%rh	+/-6,3%rh	+/-5,7%rh	+/-5,4%rh	+/-4,6%rh

It is thus of extreme importance that the temperature is constant for measurements of the relative air humidity. The air must be homogenous.

Contact with the inner parts of the humidistat nullifies the warranty.

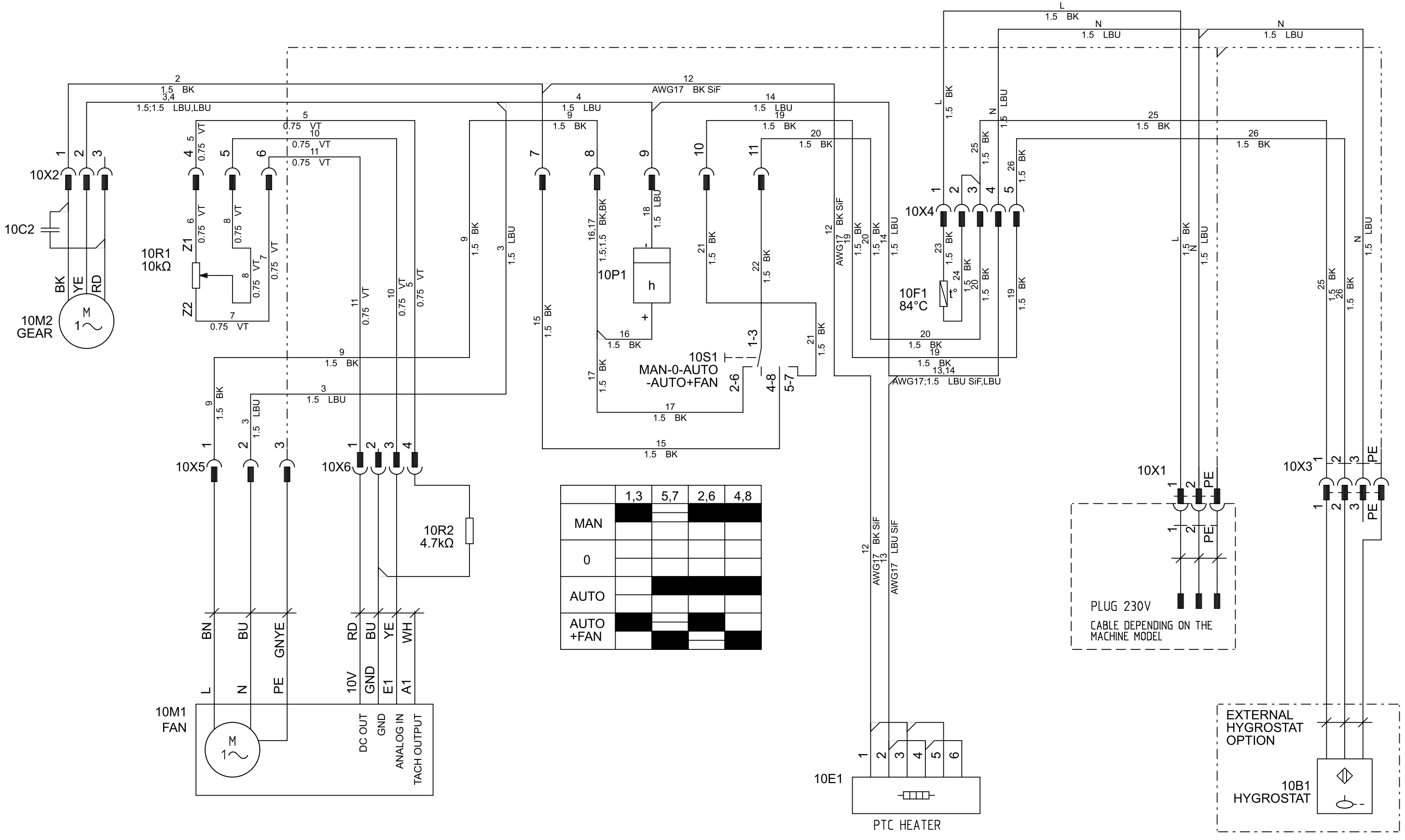
CR240	
Model	E10240E-1
Section	Electrical box
Voltage	230V AC 50Hz 1PH+N+PE
System Ground	TN-S
Max Fuse	10 A
Ik max.	6kA

Cotes A/S
Mariane Thomsens Gade 2f, 11
DK - 8000 Aarhus C

Project: CR240 E10240E-1 230V 1PH+N+PE	Drawn by: TKA	Updated by: DKL	Checked by: TMJ	Page: 1
Circuit name: Title page	Date: 12.05.2022	Update date: 06.10.2022	Revision: A	Drawing no: 1

06/10/2022
- Drawing 10:
Plug 10X1 moved from column 1 to 8
10R2 rating changed from 2,2kOhm to 4,7kOhm
10X3 112000 CONNECTOR.AUX.CAP deleted from part list

COTES	Cotes A/S Mariane Thomsens Gade 2f, 11 DK - 8000 Aarhus C	Project: CR240 E10240E-1 230V 1PH+N+PE	Drawn by: TKA	Updated by: DKL	Checked by: TMJ	Page: 2
		Circuit name: List of changes - part 1	Date: 12.05.2022	Update date: 06.10.2022	Revision: A	Drawing no: 2



	1,3	5,7	2,6	4,8
MAN	■		■	■
0				
AUTO		■	■	■
AUTO +FAN	■		■	
		■		■

COTES	Cotes A/S Mariane Thomsens Gade 2f, 11 DK - 8000 Aarhus C	Project: CR240 E10240E-1 230V 1PH+N+PE	Drawn by: TKA	Updated by: DKL	Checked by: TMJ	Page: 3
		Circuit name: Wiring	Date: 12.05.2022	Update date: 06.10.2022	Revision: A	Drawing no: 10

Parts List

NO.	TAG	QTY	DEFAULT COTES ITEM	DESCRIPTION
1	10C2	1.00	110431	Capacitor 0.12 µF
2	10E1	1.00	111457	PTC heating element 15/22 IS
3	10F1	1.00	650023	Thermal fuse 10A 84C
4	10M1	1.00	646303	Fan GR19V-4IP.Z8.AR (90W)
5	10M2	1.00	110406	Saia gear/motor UFR1ND4B25CNNZ G23 50/60Hz
6	10P1	1.00	112038	HOUR.COUNTER.M.230VAC.50HZ
7	10R1	1.00	823101	Potentiometer.10K
8	10R2	1.00	650022	EL.Misc.resitor.4,7kOhm
9	10S1	1.00	821050	Switch 25.4/0.R.4/SIBK
10	10X1	1.00	112320	CONNECTOR.4.M.S.16A
11	10X2	1.00	111102	CONNECTOR.12.F.S.16A
12	10X2	2.00	111103	CONNECTOR.3.M.P.16A
13	10X2	1.00	111107	CONNECTOR.5.M.P.16A
14	10X3	1.00	112001	CONNECTOR.4.F.S.16A
15	10X4	1.00	111107	CONNECTOR.5.M.P.16A
16	10X4	1.00	111108	CONNECTOR.5.F.S.16A
17	10X5	1.00	111103	CONNECTOR.3.M.P.16A
18	10X5	1.00	111104	CONNECTOR.3.F.S.16A
19	10X6	1.00	111105	CONNECTOR.4.M.P.16A
20	10X6	1.00	111106	CONNECTOR.4.F.S.16A

COTES

Cotes A/S
Mariane Thomsens Gade 2f, 11
DK - 8000 Aarhus C

Project: CR240 E10240E-1 230V 1PH+N+PE	Drawn by: TKA	Updated by: DKL	Checked by: TMJ	Page: 4
Circuit Name: Parts list	Date: 12.05.2022	Update date: 06.10.2022	Revision: A	Drawing no: -