

CIC-PMCG

CEAM © ION-Clima

Compact Units of Ionic Micro air conditioning
For Showcases and Museum Applications

Ceam © Microclimart Division of Cultural Heritage



Operator Manual

Cod. CIC-PMCG_Serie_UK_M1

English Language

Product Rev: 2.0 - Manual Rev: 2.0

Dear Customer

Thank you for the choice of our product, which we hope will be in accordance with your expectations, because our mission is not just to do the things that serve to a technical function, but we work hard every day and not without difficulty to create something more complete that at the end is conceptually a chest containing many things, our ideas, our ability to do, our business commitment to help in building a new world, even with just a little brick, and all this because we are convinced that companies like ours have a fundamental social role in building a sustainable tomorrow.

Besides we are ambitious and we like to hope that our work can contribute in a small way to your success.

Finally we would like to underline that while working every day for a continuous improvement, we are not perfect and that it could happen that something unfortunately we missed.

If you would aware of something however small and seemingly irrelevant, or even had a suggestion please report it promptly however, with an email addressed to: info@ceamgroup.it

The sincere and constructive customer feedback is a very important resource for us, and a real help to improve ourselves.

Thank you

Simone Campinoti
President

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1 – General Characteristics

1.1 – Introduction

Ceam © IonClima CIC-PMCG is an innovative compact microclimatic module designed for the active conditioning of the showcases in particular for the museum sector and the conservation of goods that require a climate controlled constant and very stable.

The device is available in 3 different variations: only dehumidification, only humidification or dehumidification and humidification together.

The innovation of the CIC-PMCG is represented by the used-conditioning technology, the device does not use the Adiabatic system with salts and water to dehumidify and humidify, but it uses some revolutionary electronic membranes that, managed by the automatic control system allow you to use the environment moisture to manage the humidity of the circuit of micro air conditioning of the showcase to which the device is applied.

All this produces a very stable and linear trend as to clear the climatic shocks to the artefacts, but especially you eliminate all the risks that inevitably are created using water and salts as it is normal in conventional adiabatic systems.

Thanks to their high-technology the PMCG units are very quiet and do not require special routine maintenance as the typical water-level recovery or the replacement-regeneration of salts, and being even remotely controllable via the web, through the CEAM © CWS32 platform, they can virtually be forgotten, unless schedule a periodic safety check but only to clean them from dust deposits on the membranes that could lead to obstruct them.

The PMCG module is able to maintain without problems a showcase of about 1.25 cubic meters (1.5 max) with a set humidity between 17% and 55% at temperatures of between 0 and 40 ° C, simply by drawing the necessary moisture to the micro air conditioning of the surrounding environment, but with a slowdown of the regime reaching, it can also be successfully used also for larger showcases, or for special applications, can be used more than one device in parallel to strengthen the effect and to reduce the risk of malfunction

The installation of the PMCG is very simple, it must be positioned the control probe and it must be connected to the outlet pipe and the air recirculation one, to the showcase to be conditioned, by placing the module in a protected area with power supply, for the good operation, the length of the air recirculation tubes must not exceed 2 meters.

1.2 – Technical features

Function: microclimate Compact Conditioning Module for Showcases and Cabinets, Museum Sector Etc.

Type of Use: Humidification & Dehumidification Automatic and Controlled

Functional Technology: Ionic Electronic System (Controlled Molecular Membrane)

Generation range: 17 ÷ 60% RH - In Temperature Range 0 to 60 ° C

Air Conditioning Volume: 1.25 Cubic Meters-Max - increasable with Additional Slave Module

Control System: Electronic Automatic with Remote Sensor & Digital Display

Measure accuracy: ± 3%

Repeatability of the measurement: 0.5%

Communication: Optional Serial RS485 - Modbus Protocol

Power supply: 100 to 240 Vac - 50 ÷ 60 Hz - 1.5 A

Consumption: 10 ÷ 30 W according to the Model

Noise: More than 19 dB

Operating Conditions: 0 to 60 ° C - 0 to 95% RH

Housing: IP20 for Table

Weight: About 1.6 kg

Certification: CE

1.3 – Key Legend



- A - Plug Bulgin Power supply 220 Vac 50 / 60Hz
- B - Power switch and light indicator Power-ON
- C - Jack connector for external relative humidity probe
- D - LED status indication of controller
- E - Display Electronic humidity regulator
- F - SD card reader (D-Logger function Optional)
- G - Housing in painted steel
- H - Ventilation slots
- I - Setting keys of tool adjustment
- L - Connection recirculation air hose (input module)
- M - Connection air recirculation tube (Output Module)
- N - Auxiliary power source 12V dc
- O - Module ventilation fan
- P - Module ventilation fan
- R - RJ45 network port for module connection to the system CEAM © CWS
- S - Local alarm output connector

1.4 Dimension



Supplied Accessories

- No. 1 - Module of Micro air conditioning with electronic integrated humidity regulator
 - No. 1 - Humidity probe with cable and connector
 - No. 1 - Power supply cable 220 Vac - Plug Italy
 - No. 2 - Threaded Plastic Fittings / Hose for connection pipes - With nut (hole diameter 26 mm.)
 - Mt. 2 - Smooth pipe Flexible in Neutral Silicone - East Diameter 22mm. - East Diameter 22 mm. - Int. 16 mm. - 7/8 "
- CEAM Control Equipment

2 – Installation & Maintenance

As already explained, the exclusive devices Ceam © Ion Clima Preservatech, do not use adiabatic principles to operate, but an innovative electronic ionic principle, thanks to which unlike conventional systems despite being very technological, are also much more simple technically, so they are very reliable and do not require special maintenance or periodic water fills or regeneration of Silica Gel.

Practically they require only a modest amount of electrical energy and a periodic verification of the dust that might be deposited on the membranes specially if they are installed in particularly places dusty and unclean for physical inaccessibility, as is typical in the hidden parts of the museum showcases, in particular the oldest, that are sometimes they themselves museum objects.

2.1 – Critical Issues

There are a few critical factors which may affect the efficiency of the process, so it is important to take this into account, we list the main ones:

Relative Humidity too low into the place where the air conditioned showcase is positioned. If it is below 20% RH, the device that uses the external moisture to condition the indoor humidity to the showcase, the system works under stress and may take longer to reach the climate balance required, or never come to join it.

Having to take advantage of the outdoor air to condition the interior of the showcase, the volume of the device installation site must be large enough but especially not airtight but ventilated to allow the device to breathe properly.

If natural ventilation would not be sufficient it is necessary to mount some auxiliary fan to generate a forced air between the outside and inside of the technical room.

It is important to use the right size (the one of the fittings) of the connecting pipes of the device to the showcase, and it is also important to use smooth pipes and not corrugated, as short as possible, never exceeding 2 meters.

Excessively long tubes reduce the flow rate of the replacement, not smooth tubes reduce the flow velocity, in both cases, reducing the effectiveness of the treatment.

2.2 – Installation

Ceam © IonClima is also very easy to install and there are a few rules to follow to obtain excellent results.

A) The first rule to obtain a conforming performance is to verify in advance that the showcase has got the volume compatible with the device's capacity, so about 1.2 to 1.5 cubic meters, and that it is securely sealed. If not, arrange to perform a restore operation or require an intervention of our technical service MICROCLIMART.

B) Locate the best point for the positioning of the micro air conditioning module, which must be accessible and protected but also sufficiently ventilated, equipped with a power supply point at 220 Vac, 50 Hz, and if you want to remotely control the device via the network, you must be also provided by a usable Ethernet point.

If the network point is not present, you can request the CEAM alternative solutions, both wireless and via Powerline (Transmission of Electricity Network Data).

C) Locate the point for the passage of the cable of the humidity measuring probe, that by the microclimate module must reach the interior of the showcase to be air conditioned.

The crossing point must then be sealed but not irreversibly, for easier operation, if there was the need to remove or replace the probe.

The point must be of medium reference and sufficiently sensitive, that is, a point where the detected value is representative of the real moisture trend, because the module will adjust the set humidity on the basis of the detected value at that point.

Placing the sensor in a wrong point would involve consequently a poorly precise adjustment or very unstable, even up to produce a random setting, if the selected point would not be actually in contact with the climate generated by the module.

D) If you are going to use for the connection the two plastic fittings supplied, arrange to drill two holes diameter 26 mm. for the connection of inlet tubes and micro air-conditioned air outlet, which must not be performed at a close distance to prevent direct recirculation.

The holes for the two recirculation pipes must be made in diametrically opposite positions at the selected point of access of the showcase, in order to allow the flow to interest the whole volume to be conditioned in a uniform manner.

E) The silicone tube is supplied with a length of 2 meters and must be cut into two pieces to obtain two micro air-conditioned air recirculation pipes.

The hose length is very important for a good functioning, the shorter the better it is. The maximum recommended length is 1 meter.

Even the position of the cable is very important, it must be given very careful not to create obstructions that prevent or reduce the flow, in particular, on eventual curves.

F) The micro air conditioning active form can also be used in the tiling of the Buffer in Silica-gel inside the showcases.

G) The module must be installed in a vertical position, but in exceptional cases it can also be mounted horizontally positioned, however, whereas the lower part must be ventilated to allow a perfect air circulation, and also taking note that this position exposes the membranes to a greater risk of saturation from dust, reducing the effectiveness of the device until it stops to work.

2.3 – Maintenance

As previously explained, these active micro air conditioning modules require no particular maintenance, the only attention to be paid is the dust, especially if the module is used in a particularly dusty environment.

The powder for effect of the air movement generated by the micro fans is inevitably deposited on the membranes up to saturate them, especially if the module instead of being installed vertically, for special needs has been mounted horizontally.

So it is advisable to periodically remove the device from its housing and provide to clean it by blowing.

If the dust deposited on a massive scale is also encrusted, it is advisable to send it for cleaning and inspection at the CEAM laboratories in Empoli.

The device must never be disassembled.

3 – The regulation

3.1 – The Regulator

On the panel of the Micro air conditioning device it is located the electronic humidity controller.

The display shows the value measured by the sensor (LED RH) and the value of Set Point (Led SET)

The display range is 0 to 99.9% UHR with a decimal.

Pressing the SET key and using the arrow keys you can set the desired humidity set-point

For the local alarm setting press the ALA button and then use the arrow keys to reach the desired value, the physical output alarm ON-OFF is available on the connector on the rear of the module.

Since the display of the module is on the module itself, so it will be virtually invisible from the showcase in the operating configuration, for more security, we suggest you to install an additional digital display of moisture with independent integrated sensor, such as the LCD miniature model at batteries, CEAM C903 (Art. 5B244) directly into the showcase, in a prominent position directly, in order to monitor in view and at any time the correct operation of the micro air conditioning module.



3.2 – The Probe

The humidity measurement probe is fitted by cable and jack connector

And once placed both the module and the probe, you can insert the connector in the "PROBE INPUT" hole in the front of the micro air conditioning module, and then turn on the device.

The probe delivered with the module does not require calibration, as it has already been coupled correctly at the factory.

In case of replacement with a new sensor, you must reconfigure the instrument to obtain a correct measurement, each probe is supplied with the configuration parameters needed.



Caution!!! The configuration of a new probe is a delicate operation; even minimal error involves a wrong measurement, then a malfunction of the micro air conditioning form.

For this reason we recommend letting do this operation exclusively to the CEAM skilled technicians, so to avoid malfunction or errors in measurement, which thanks to specific calibration instrumentation and once installed and configured can also verify the actual proper functioning.

3.2.1 – Configuring the new probe

Procedure reserved to CEAM Technicians

4 – Warranty

Attention!!

The present handbook is merely indicative, and it is subject to changes in any moment, without giving any notice.

The not respecting strictly the indication found on this handbook, the opening and tampering the product, the incorrect use, the wrong wiring, the using of spare parts or optional not original CEAM Control Equipment, the removing of the labels, of the identification marks put by CEAM Control Equipment, and the hidden export to Extra CE counties, they make immediately lose the responsibility over the product and the warranty right!

WARRANTY TERMS: the product is under warranty for a period of 12 Months (Art. 1490 C.C. and following) starting by the delivery note date, also in case it is in vision, and then transformed in selling, the complete text of the warranty conditions offered by CEAM Control Equipment in conformity to the actual laws, are published, and are at disposal of any people which demand for them, the document is registered both in paper form and in electronic form, to the CEAM Control Equipment, headquarter, and to see it, it is sufficient to make a written request, specifying the title of the applicant.

The warranty cover:

The products and the components which bad functioning is referable for sure to production defects, the eventual defect met gives only the right to repair it, and not to substitute the product, besides the eventual production defect, does not give any right to resolute the contract, or to suspend the payment if not expressly agreed in written by CEAM.

The warranty does not cover:

Defects generated by incorrect or improper use of the product
 Defects generated by using spare parts or consumables products not original CEAM
 Defects generated by environmental and/or atmospheric problems and/or natural calamity
 Products and/or services tampered or modified even partially
 Products and/or services to which have been taken off, or tampered, even partially, labels and lot codes original CEAM

In any case, the warranty does not cover:

Batteries, magnetic devices, perishable products and/or consumable products
 The components of Third parts, to which it must answer directly, the assistance service of the same, with the modalities provided from them.
 The technical time used to verify and/or to repair the products
 The travelling allowance and the technical intervention on the place, if effected.
 The packaging and shipping cost of the products there and back.
 All the additional costs supported by CEAM to fulfil the warranty.

Clause of responsibility exclusion

CEAM does not assume any responsibility, regarding eventual damages, direct or in direct, caused to people or things, or damages for non-production and/or incorrect production and/or eventual damage, in some way referable to the product and/or to this handbook service.

CEAM does not assume any responsibility regarding eventual damages caused to people or things because of the eventual not conformity to the product and/or service of the present handbook, which is merely indicative, and that can be changed by CEAM in any moment without giving any notice.



5 – How to Order

The Modules:

Art. 5B152 - Module CEAM ION Clima Mod. CIC-PMCG-DH-M-3 - Humidification & dehumidification

Art. 5B270 - Module CEAM ION Clima Mod. CIC-PMCG-HH-M-3 - Just Humidification

Art. 5B271 - Module CEAM ION Clima Mod. CIC-PMCG-DD-M-3 - Just Dehumidification

Parts & Accessories:

Art. 5B273 - CIC-MPCG-PRB01 RH Probe Part

Art. 5B272 - CIC-PMCG-KIT01 – mounting kit consisting of:

Silicone hose length. 2 MT

Threaded fitting tube connection x 2

Lock nuts for fitting x 2

Tube of Silicone Sealant

C903 Art 5B244 - compact LCD additional indicator with integrated sensor - Battery Power Supply
For control and safety measure inside the showcase

Kit connection in Ethernet Network

Powerline Connection Kit

UMTS Wireless Network Connection Kit (Sim card not included)

Additional services:

Art. 0B240 - Installation, Adjustment and Setup Specialist Service,
Performed by specialists of the CEAM Division MICROCLIMART

Certified calibration verification service of the measure of humidity - ISO & ACCREDIA Mode

Maintenance Service

Monitoring service via WEB - www.cws32.it

For more available accessories (Contact Customer Service):

Company With Quality System Certified

UNI EN ISO 9001:2008

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