



# From compost to mushroom



# Conditions for balanced mushroom growing

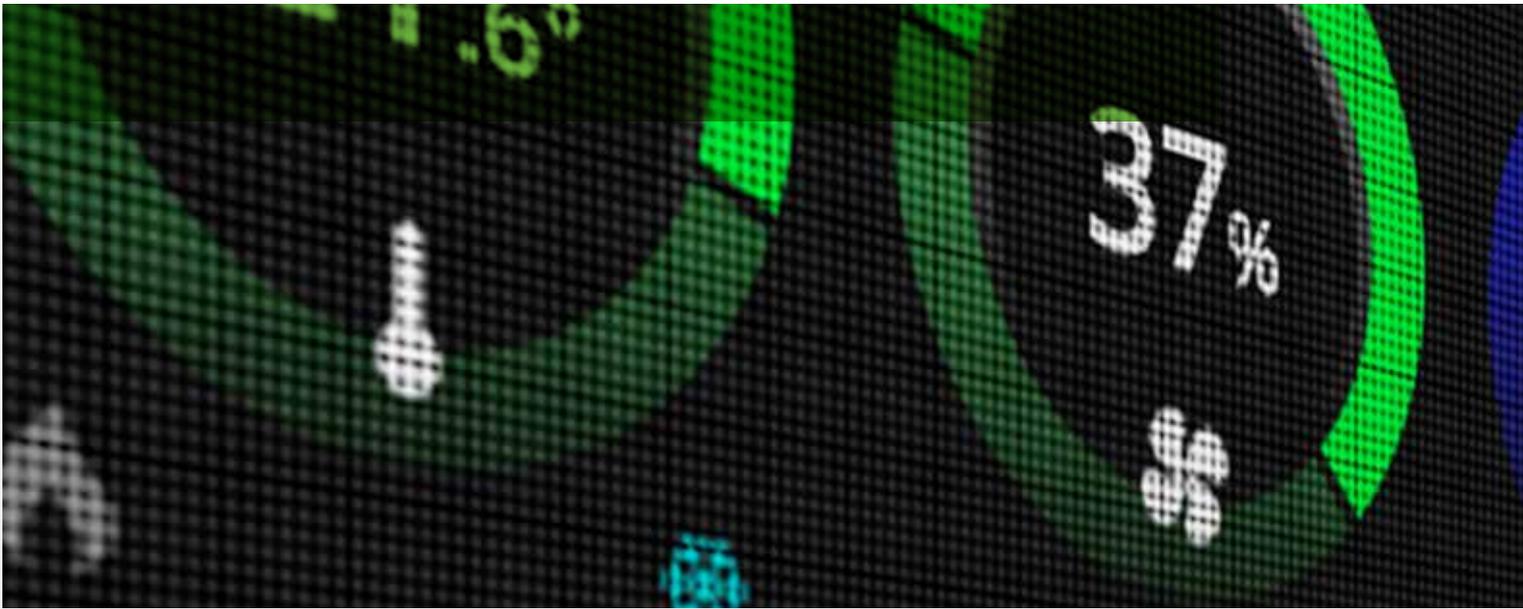


*From compost to mushroom, Fancom creates the conditions for balanced mushroom growing. Fancom has a climate computer suitable for each phase of the production process, from fermentation to harvest. Our systems are total solutions consisting of a control computer and peripheral equipment developed by experts with sound knowledge of the mushroom growing processes. A simple way to increase the efficiency of your operational management.*

## **Cost reduction and quality improvement**

Our climate policy is aimed at sustainable profits. We save on ventilation and heating and cooling, without compromising quality. On the contrary. All components incorporated in the Fancom systems are selected for quality and functionality. These are the elements of your installation that demand absolute reliability.

Fancom has been active in the mushroom sector since 1980 and many of our first systems are still up and running - to the complete satisfaction of the users. The power of future proof, long term solutions. Together with our installers we devise solutions for tomorrow's mushroom growing industry, aimed at cost reduction, quality improvement and energy saving. Fancom controllers offer you the guarantees you need, even after many years.



The Fancom Lumina series of climate controllers are characterised by a super easy touch screen operation. The Lumina series uses the very latest operation techniques, which makes management of the intelligent controls of the Fancom climate and watering computers much easier. In this way, the Fancom climate controller frees your hands but still leaves you in command.

## Next step in control

### Ease and safety

Our Lumina controllers have easy to use touch screens with smart control functions, user friendly overviews and trend graphs, giving the user a quick overview of the situation in the growing rooms.

For even more ease of operation, you can use the FarmManager management software for your PC. FarmManager allows you to display, save and analyse all the data from your Fancom climate computers. If necessary, any changes to the climate settings can be made from behind your PC. An app for remote control with your smartphone is part of the options. A feature that is not only very practical but also leads to knowledge and insight into cultivation results for improved farm management.



# Phase 1 | Fermentation

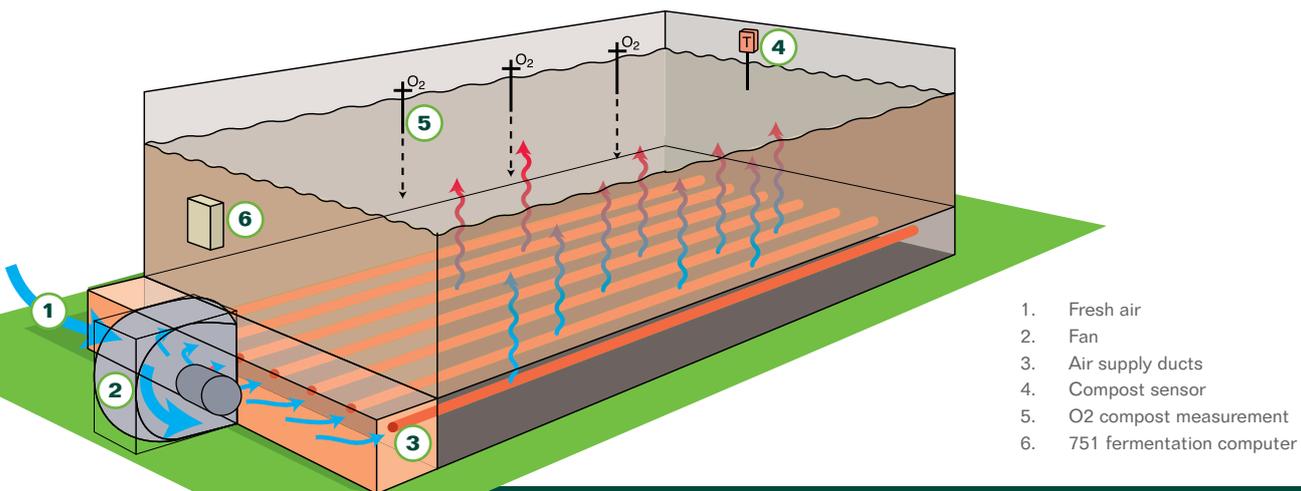


## The perfect control for optimum aeration

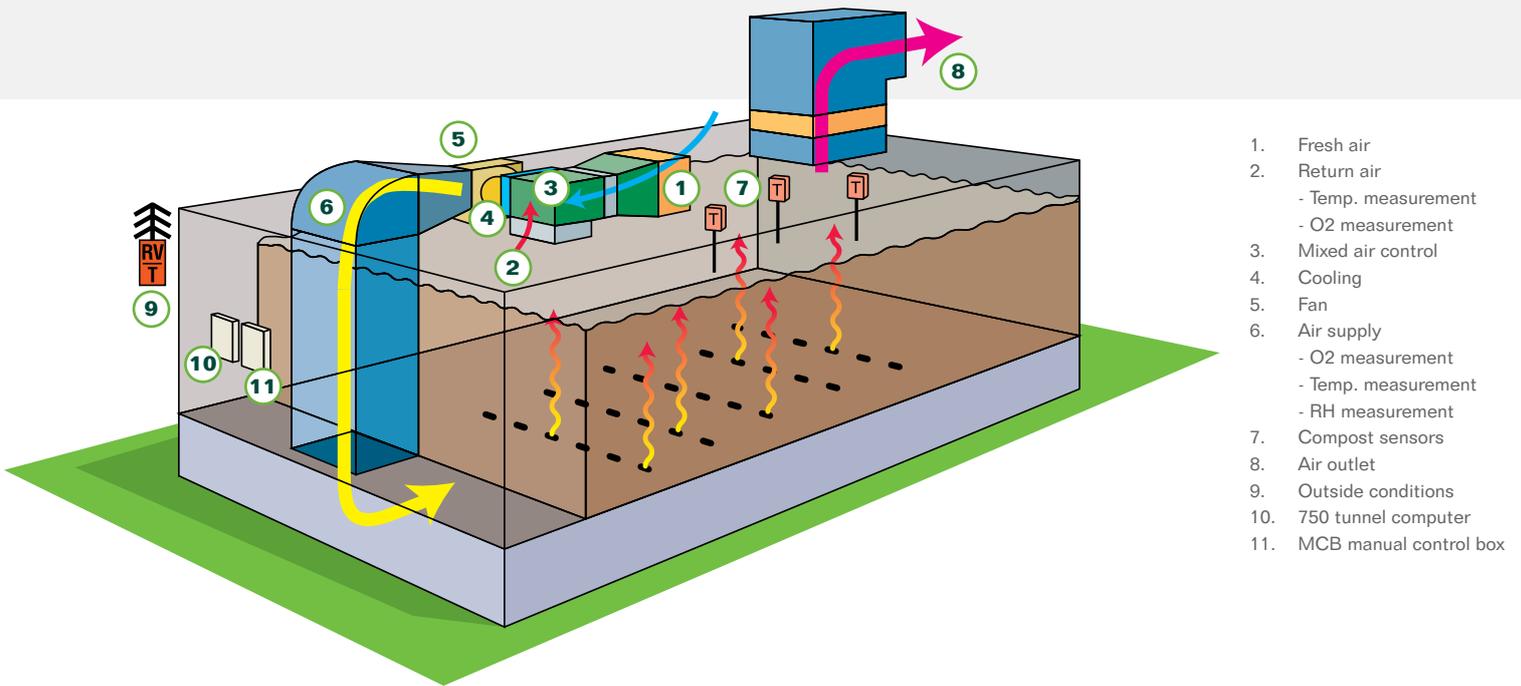
*Aeration fields, open or half open bunkers or fermentation tunnels - the Lumina 751 will perfectly control compost decomposition to create an end product ideal for further processing in the production process.*

Freely settable fermentation phases control aeration in two sections based on time, compost temperature and oxygen content in the compost. The control principle is based on oxygen measurement in the compost, while aeration control is based on a variable time clock. The activation time of this clock varies depending on the oxygen content in the compost. The optimal oxygen content can be influenced by the compost temperature. A heating system or mixed air valve can be used to control the air inlet temperature. Pressure in the air inlet and exhaust can also be controlled.

An alarm signal warns the user if the compost temperature and the O<sub>2</sub> content differ from the required value. Several bunkers can be linked to the central air inlet and exhaust systems. Environmentally friendly exhaust systems can also be linked to the central operation using a PC.



# Phase 2+3 | Pasteurisation



## Optimum quality of your substrate

*The better the climate in your tunnels, the better the quality of your substrate. So Fancom's Lumina 750 tunnel computer creates the optimal climate conditions in phase II and III processes in tunnel systems for various varieties of mushrooms. A well controlled composting process is also faster, adding time gain to the list of benefits.*

The Lumina 750 can control all customary air treatment systems without any problems at all. The climate is controlled by regulating the fresh air, circulation, cooling, heating, humidity and steam. All the settings required are contained in production phases. The Lumina 750 will automatically create the right climate throughout the entire process, from filling with fresh compost up to the end of cook out. Based on these settings, the computer automatically ensures the correct balance between temperature, humidity and oxygen content. The result is a perfect growing medium for mushrooms.



# Growing phase



## Energy saving control possibilities



The Lumina 765.e is suitable for all mushroom varieties in growing rooms and controls the climate of all types of air conditioning systems. Control settings such as fresh air, circulation, cooling, heating, humidification and steam are contained in ten growing phases. Temperature, humidity, CO2 and O2 are automatically geared to match the progress of the growing process. The 765.e/765.xl also has a clock control for lighting and alarm functions, for example. Settings and measurements are clearly shown on the extensive display. Start and stop help phases such as drying, disinfection, working conditions, CO2 shot and stimulation phase can be activated with a single click.

In addition, the Lumina 765.e has a number of additional energy saving control features:

- Heat exchanger outside air
- By-pass heat exchanger
- Heat recovery cooling system
- Heat recovery from systems for cook out energy
- Central heat demand
- Central cooling demand
- Registration of energy consumption
- Optimal use of outside air
- Multiple humidification controls:
  - Steam
  - Cold water
  - Watering unit
- Double heating and cooling



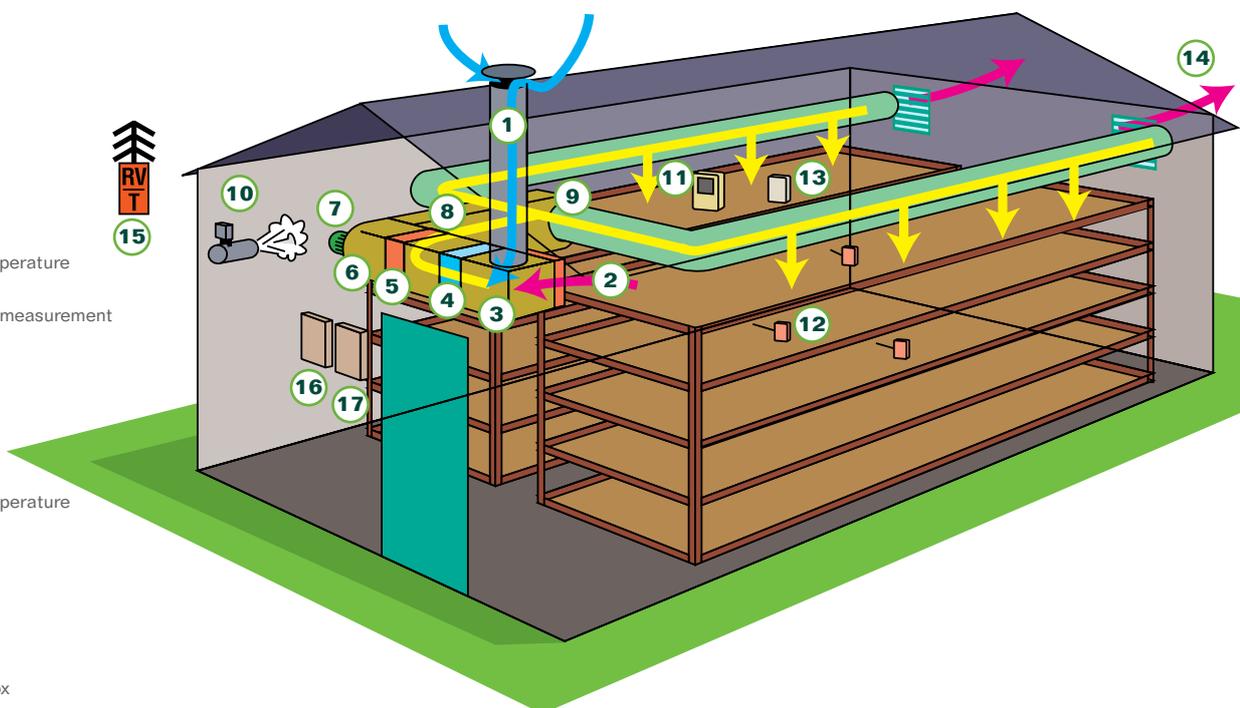
Control features for better cultivation results:

- Help phase CO2 shot
- Help phase growth stimulation
- Options humidity control:
  - RH
  - Absolute humidity
  - Moisture deficit
- Curve setting humidity control
- Pressure control
- Moisture difference control inlet air and growing room air, evaporation measurement, heat humidity and CO2 balance (765.xl only)

## For better cultivation results

Besides the standard Lumina 765.e, we also offer the special Lumina 765.xl version with additional climate control features to increase productivity. A unique feature is the possibility to regulate evaporation in the growing rooms by controlling the difference in humidity between the inlet air and the growing room air. A new inlet moisture control measures the air before it enters the growing room, and therefore it can respond faster to the required cultivation conditions. A heat, humidity and CO2 balance will grant you greater insight into the cultivation process allowing you to predict the expected yields. The result is better quality and higher production.

1. Fresh air
2. Return air
3. Mixed air control with temperature measurement
4. Cooling with temperature measurement
5. Heating
6. Frost thermostat
7. Fan
8. Inlet temperature
9. Inlet humidity
10. Steam supply
11. RH measuring box for temperature measurement and RH
12. Compost sensors
13. CO2 measurement
14. Air exhaust
15. Outside condition
16. 765 computer
17. MCB manual operation box



# Exotic mushrooms



## Lumina 765 for a successful crop



*The Lumina 765.e is suitable for all varieties of mushrooms produced in growing rooms. It controls the climate of all customary air treatment systems. As well as white button mushrooms, there are many other varieties of edible mushrooms. For years, the demand for these exotic varieties has been growing, driven by the increasing trend of eating healthy and natural food. Oyster mushrooms, enoki and shiitake are a few examples of popular exotic mushrooms.*

These mushrooms are produced commercially on a pasteurised substrate in controlled conditions. The composition of this substrate differs from that used to grow ordinary mushrooms. Plastic bags or bottles are filled with this substrate before the cultivation process starts. The combination of the right nutrient base and optimal conditioning of the climate in the growing room determine the success of the crop. The Fancom 765.e mushroom computer plays a crucial role in creating the right climate conditions.



## Higher production and better quality



Cultivating exotic mushrooms is a delicate balancing act. The Fancom computer automatically creates the optimal cultivation conditions and takes outside conditions into account. The system continuously monitors important climate parameters such as substrate and air temperature, humidity and CO2 and always ensures the correct balance. If any abnormalities are detected, the computer will respond rapidly but, at the same time, gradually. The result is a stable climate with hardly any fluctuations in the cultivation conditions. Users can benefit from higher production and better quality.

The results are accurately presented. This information offers producers an extra tool so they are in a better position to analyse and steer operational processes without the need to be physically present in the growing rooms. The time savings are obvious.



# Watering control



## Labour saving watering computer

*An automatic watering control saves time and has a positive influence on the quality of your mushrooms. The Lumina 767 controls the amount of water in one or two growing rooms. There are two versions suitable for lorry systems or static watering systems.*

The Lumina 767 has an extensive range of security and registration features:

- Automatic watering using spraying cycles, spraying patterns and programs
- Automatically starts the drying phase in the Fancom climate computer
- Alarms for:
  - Water amount
  - Water pressure
  - Leaks
  - Lorry speed
- Clear status indication
- Registration of litres/m<sup>2</sup> and total litres

The computer allows the required amount of water to be dosed automatically at any hour of the day. Optimal distribution of the required amount of water over the entire cultivation period, and accurate control of the available water divided over the growing room (sequence control), improve the efficiency of water use. In addition, uniform water distribution improves the growth conditions for the mushrooms. As well as the pre-programmed automatic controls, the grower can make manual adjustments to adapt the watering settings more accurately to suit the situation at that particular moment.

## Farm management from your PC

*Agricultural entrepreneurs must be able to measure profitability on a daily basis. Farms are ever increasing in size and are often located on various different sites. Fancom offers a serie of products designed to clearly check, monitor, analyse and control the actual situation from various different locations.*

FarmManager software links you to your farm 24 hours a day. You can check on the situation in the tunnels or growing rooms, no matter where you are in the world. Any alarms can be sent to your PC, tablet or smartphone. And, if necessary, you can adjust the settings in the control computers remotely to improve results even more.

FarmManager collects and combines the data from your process computers and presents the information in clear overviews, graphs and tables. By registering this data in the right form it is converted into valuable information. Information that is easily analysed and compared, and leads to knowledge and insight into cultivation results, farm processes, economic consequences and improvement possibilities. FarmManager also offers the possibility to export the sampled data to a server of your choice. Registration is learning, and this knowledge is translated into better production and improved farm management.





# Peripheral equipment completes the system

## **MUX 8/16 multiplexer**

The multi-functional MUX multiplexer measures and controls the CO<sub>2</sub> and O<sub>2</sub> concentration. The MUX can independently control a simple fermentation process or air inlets. Combined with a climate computer, the MUX fine tunes the climate process during the various production phases.

## **Peripheral equipment**

As well as control computers and corresponding software developed by Fancom, we also supply complete peripheral equipment. All the equipment is harmonised to work in unity and form an optimally functioning operating system. You can create your own installation using our air sensors, compost sensors, CO<sub>2</sub> and O<sub>2</sub> sensors, RH measuring boxes and intelligent extension modules.





# Fancom, your partner

*Our commitment doesn't end with inventing and developing systems. Even in the design phase, we are happy to think with you about the best possible solution for each specific installation. So you can benefit from our many years of experience in automation. Our systems to enhance profitability are produced specifically for individual situations: for each country, each climate and each production strategy.*

## **Practical support**

While the project is being completed we provide professional support during each stage. Our advisors take time to become familiar with the challenges facing our customers, understand how they operate and provide expert guidance, so that a total solution develops into a long-term working partnership.

Even before your purchase we are happy to provide expert advice about the best solution for your individual situation. And afterwards, you can rely on professional installation and service. Finally, you can rely on complete instructions when the installation is in the start up phase. Even if your installation has been operating for years, you can still call on our support and advice to ensure you gain the maximum profit from all the options offered by our systems. Via our FarmManager software, external advisors can access the data on your company even from a distance.

Our distributors and importers are selected for their expertise and quality. They follow special training sessions and are kept informed about all the latest developments. They represent us all over the world. Personal advice, expert installation and superb service are always available locally.

# Training for 765 users



*Customer satisfaction ranks high on our list of priorities. This also implies that users should feel familiar with using our equipment. The climate control computer is an essential component of a mushroom farm. Due to the extensive control options, we often see that many functionalities are not used or not benefitted from optimally in practice.*

*Users can only fully benefit from better results once they know how all the functions work and can apply them in their own situation.*

## **The training locations**

The international training sessions will be organised in various countries.

- Ireland
- Poland
- The United States
- Canada
- The Netherlands
- Spain
- China
- Australia
- Italy
- South Africa

For more information about the dates and locations, go to [www.fancom.com/765-user-training](http://www.fancom.com/765-user-training)

## **Improve your knowledge of the 765 computer**

Fancom can visit you to give a two-day training session to users of the 765 mushroom computer. The session addresses all control options of the 765 computer for an optimal climate during the entire cultivation phase.

We respond to changing market situations where increasingly higher demands are being placed on quality improvement and energy savings. You will learn how the 765 can help you meet these requirements.

## **About the training**

The training sessions combine theory and practical daily use of your 765 computer. In two days, you will gain a better understanding of all the functions of the computers on your farm, and how to apply and adapt these functions to best suit your individual situation. The training is not limited to the functionality of the 765, it also handles current topics such as moisture deficit and evaporation measurement. The latest developments in climate control will also be discussed. Case studies taken from practice will help you deal with these subjects. Logging in live to a farm is also possible.



### Expert trainer

The training will be given by Jan Gielen, manager at Delphy Mushrooms. Jan is a climate and energy specialist. He has years of experience in mushroom growing and combines specific professional knowledge with expertise on the latest developments within the sector.

### Who can benefit from the training?

The training is intended for everyone who is involved with climate control on a mushroom farm. The training will improve the skill levels of both experienced employees and those new to mushroom growing. This is way of keeping your employees motivated and boosting the knowledge and experience on your farm.

### Special discount for 765 users

Especially for users of our 765 computer, Fancom is now offering this two-day training session for € 375 per person (normal rate € 625). This includes training material, coffee and lunch on both days and an evening meal with the other participants on the first day. All the participants will be given a certificate at the end of the session.

**Go to [www.fancom.com/765-user-training](http://www.fancom.com/765-user-training) or scan the QR-code.**

# Register now!



# User testimonial



## “Clearly presented, user friendly and reliable”



*Pieter van den Boomen from Champignonkwekerij Gemert bv couldn't operate without the computers on his farm. The farm produces five million kilos of mushrooms annually on a growing surface area of 15,000 m<sup>2</sup>.*

A Lumina 765 computer has been installed in each of the eight growing rooms to control the climate and a Lumina 767 for the watering systems. The computers take over a great deal of his work and ensure that cultivation is successful.

Pieter is extremely satisfied with how the computers perform on his farm: “The system is clearly presented, user friendly and reliable and improves the quality of my mushrooms. I can see at a glance if the processes are running smoothly or not. That makes my job a lot easier”.

Watch the full interview with Pieter van den Boomen on [www.fancom.com](http://www.fancom.com).

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