



LCC4 CLIMATE CONTROL



Logic Climate Control (LCC) user interfaces for intuitive operation

Highlights

- 1 to 16 compartments
- Distributed I/O, flexible for present
- Industrial PLC technology and modular hardware/software
- 6 time zones with separate settings for temperature, humidity, light addition and CO₂
- Advanced control when using more than one sensor in one compartment and future installations/expansions

When developing LCC4, we attached great importance to achieving a simple user interface without compromising the setting options. We collaborated with nurseries, and this is clearly expressed by the user friendliness of the computer. LCC4 features a touch screen and in combination with the option to design own screen pictures, this makes the climate computer a safe and logical tool at all times.

The LCC4 climate computer can control all climate functions from one to 16 compartments. The LCC4 is based on state-of-the-art technology and an advanced operating system and is therefore easy to update and expand with more functions and capacity.

The LCC4 communicates via Ethernet with the installed expansions, and this ensures a great degree of flexibility in connection with future expansions.

The flexible composition of the hardware in the LCC4 makes it possible to choose the sensor which is exactly optimal for a particular production, and it is also possible to use more than one of each sensor in each room. This flexibility provides a high degree of accuracy and safety.

Energy saving climate control

LCC climate computer can divide 24 hours into 6 time zones with optional automatic correction, depending on sunset and sunrise.

Furthermore, control of the screen can be done depending on the sun radiation, heat loss and the artificial light. In this way the screens are maintaining the heat.

For the LCC4, we have developed a new Energy Balance Model. The model calculates the energy demand based on the K-factor of the greenhouse and the screens, the change of air and the energy added by artificial lighting.

The model "recognizes" the greenhouse and the energy demand, which ensures a better and more stable regulation also known as "feed forward regulation".

Common and individual control

LCC4 can control up to 16 compartments and each compartment can be divided into two subzones, depending on the function. All functions can have common set points. It is also possible to have local set points in the subzones. These can be dependent or independent of the common set points. This gives a simpler operation of the computer and at the same time it is possible to adapt the conditions to the different cultures.

With the LCC4, we continue ventilating control with cascade vent control. This means opening the lee side and the wind side at the same time. The wind side is opened to a small crack while the lee side is opened as much as needed. This cascade control of vents gives an effective ventilation in the greenhouse, even at small vent opening percentages.



SPECIFICATIONS / LCC4 CLIMATE CONTROL

Technical specifications

Supply Voltage	100 - 240 V AC - 50/60 Hz
Power consumption	65 VA
Communication	ETHERNET

Physical specifications

Temperature, operation	0 - 50° C (32 - 122° F) no direct sun radiation
Humidity	0 - 95 % RH without condensation
Density	IP65
Dimensions L x W x H	440 x 330 x 130 mm (16 x 12 x 5")
Weight	App. 9 kg (20 lb)

Expansions

Small

- Digital inputs 2
- Digital outputs 18
- Analog inputs 8
- Analog outputs 2

Medium

- Digital inputs 2
- Digital outputs 32
- Analog inputs 14
- Analog outputs 2

Large

- Digital inputs 16
- Digital outputs 64
- Analog inputs 16
- Analog outputs 2

Logic operation by means of touch screen:

The LCC climate computer is easy to operate with clear menus on a 10.4" TFT colour touch screen.

Optional central control:

LCC4 is a network model which communicates with Super-Link via Ethernet.

LCC4 - Essential functions

- Heating valves: 4
- Vents: 4
- Screens: 8
- CO2 control
- Artificial light: 4 zones
- Time zones: 6
- 3 step of artificial lighting
- Tripple tariff
- Subzones: 2
- Heating step: 2/4 (2 per subzone)
- Vent step: 2/4 (2 per subzone)
- HAF (1 per subzone)
- Negative diff.
- Max. humidity: 2 (1 per subzone)
- Botrytis reduction
- Misting: 8 valves
- Irrigation valves: 1

Expansion software:

- Middle temperature control
- Irrigation program for 2- 16 valves
- Superstep

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