



Environment Manager Software

The **Tomtech Windows Environment Manager** software is a suite of 32bit applications designed to run under the Windows operating system. These applications provide:

- Centralised control system monitoring
- Performance data collection
- Performance data analysis
- Remote programming of control settings

This software may be used with all Tomtech control systems including the T200, HC160, HC80 and IC20 computers.

System Monitoring. Monitoring of all current measurement and control information from all Tomtech computers connected to the PC. This information includes current readings for all sensors and control information giving vent opening, heating status, irrigation schedules etc.

User defined '**profiles**' allow any selection of this information to be displayed in any order. Multiple monitor windows may be open at any time. Should a measurement alarm threshold be exceeded the P.C. will show the relevant parameter highlighted in a different colour. The alarm may be cleared from the P.C. as well as from the individual control computer. Irrigation can be started, stopped, paused or resumed for all groups.

Gathering Of Statistics. The individual control computers retain a record of measurement and control data for the last 3 days. This information will be automatically downloaded onto the PC and saved as daily data files whenever the 'Monitor' programme is active. This download occurs in the background and does not require any intervention. Once these data files are transferred to the PC they will be retained indefinitely and can be referenced at any time.

Graphical Data Analysis. The data transferred from the control computers can be viewed graphically or in numeric form by accessing the daily data files. Graphs can be superimposed for up to ten sets of data at once. This can be any ten sets, so for example the temperature can be compared for a particular date in a number of different houses or it might be compared for the same house on up to ten different dates or a complete profile for a zone may be drawn showing temperature, humidity, light, heating demand, screen position etc.

The time scale of the graphs may be selected to be 24 hours, 3 days, 1 week, 4 weeks, 3 months or six months allowing analysis of longer time periods. Moveable cursors allow any period of time between 15 minutes and 3 months to be chosen. Statistics show the maximum, minimum, mean, percentage above a threshold etc. for the full graph time scale and for the cursor period.

Graphs may be drawn in integral mode to obtain total energy from light information for example. All graphs may be drawn as integrals and these integrals may be related to thresholds so for example temperature 'T' sums may be drawn and susceptibility to botritis examined directly on the screen.

Remote Programming. The set points for all the control computers may be examined and changed from the P.C. Un-authorized changes are avoided by password protection. Up to 5 different passwords may be defined with different access for each one so that a number of users may have access to the system from a single P.C. without interfering with each others areas of responsibility. Set points may also be saved on the P.C. disc system as named regimes which may later be easily restored to the control computer as crops change.

The heating and ventilation set points may be modelled on the PC screen. By selecting the corresponding set points for a house the interaction between the heating and ventilation will be shown as a graph on the screen for heating and venting target temperatures, heating maximum temperature, and venting minimum temperature. Light influence may be also be modelled for a range of light intensities for different seasons to check that the selected light rise will also give the expected results. This provides a simple means for checking the programmed environment before implementing set point changes.

Crop Costings. The P.C. may be used to produce an account for each individual zone of running costs against either the zone as a whole or against crops produced from that zone. This account may be for any time period and will show the relative heating, lighting etc. costs for all zones. This part of the programme is very useful for determining the 'cost effectiveness' of a particular regime.

Connecting The Tomtech Control System To The PC

Any suitable PC may be used which will need one of the following Microsoft operating systems:

- Windows 98
- Windows 2000
- Windows Millennium edition
- Windows NT
- Windows XP
- Windows Vista
- Windows 7
- Windows 8

No special features are need other than a port for connection to the control system interface.

For local applications a PCI3 intelligent interface will be provided with the software to inter-connect the Tomtech control system to the PC. This interface can connect to any number of Tomtech computers and has two ports for connecting to the PC.

A USB port: Drivers are supplied with the install CDROM to enable any PC USB port to be used to communicate between the PCI3 and the PC.

An RS232 port: This standard serial interface will connect to any COM port either directly or via a modem link through the telephone system allowing the PC to be located on a remote site.

Both PCI3 ports can be used simultaneously allowing, for example, local connection to a PC at the nursery site via the USB port while also connecting via a modem link to a second PC at a remote site.

For applications where a direct wire link cannot easily be installed between the Tomtech control system and the PC a radio link may be used instead of the PCI3.

[Using The Software With PC Networks](#)

The Environment Manager is designed to be used with networks. It will work over any network supported by Windows. A direct connection will be made from the Tomtech control system to one PC. The Tomtech 'Comms Hub' application will talk to the USB or serial port used to make the connection and make the data available to Windows. Any PC on the network will access this information via IP addressing and the use of sockets.

[Software Support](#)

The cost for the Environment Manager software includes lifetime support and free updates. From time to time the software for the Tomtech control computers is updated and the 'Environment Manager' software is changed to match. Software updates for all Tomtech computers and the Environment Manager are free of charge.