

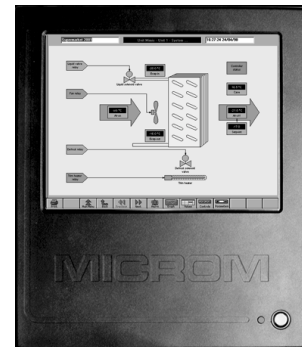
GUARDIAN CONSULTANT

Touch Screen or Desktop PC

Refrigeration Management Platform for Supermarkets and Coldstores

USER GUIDE

Instantly tells you what you want to know
...when you need to know it!



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INTRODUCTION

About the Company

The company was originally founded in 1983; supplying microprocessor based control and monitoring equipment. In 1989 our first stand-alone case controller (the ITC952) was developed and installed in Tesco stores within the UK. Since then a range of over 30 product types for control and monitoring have been supplied world-wide into a wide variety of supermarket and industrial refrigeration applications. The company was restructured and changed its name to Guardian Controls International in April 2001. If you have any queries about the company or the Consultant system, please contact us:

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We are committed to continually improving all of our products, and welcome any feedback regarding this manual, the Consultant system or any of its associated components. In addition we are keen to receive suggestions that will help to improve future versions of our products.

About This Guide

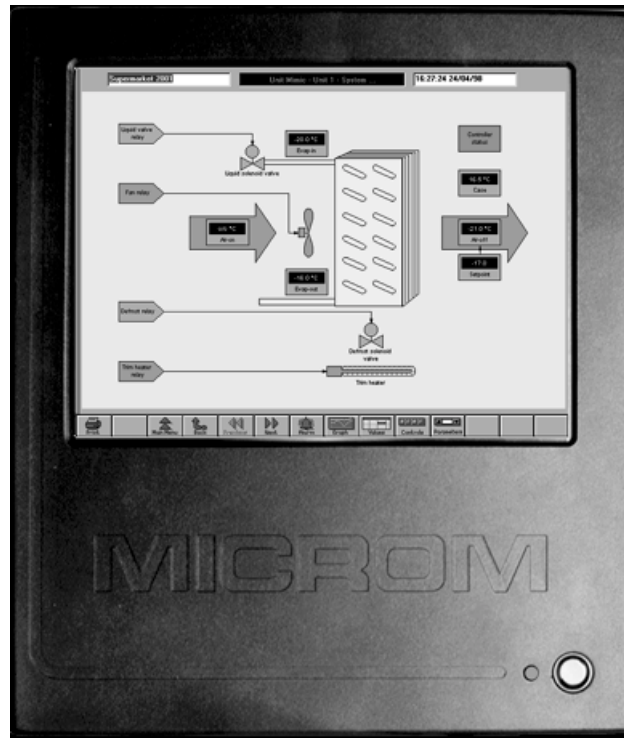
This guide is aimed at store staff and refrigeration service personnel who need to be able to use the *Consultant* system. It aims to explain the facilities available within the software and how these may be exploited. It is assumed that the user is familiar with the basic principles of touch screen and /or keyboard and mouse operations.

About Consultant

Consultant provides refrigeration managers, engineers and service personnel with the opportunity to improve their product quality, operating performance and running costs in supermarkets and coldstores. The system has been specifically designed to improve the temperature management, maintenance and efficiency of cases, coldstore evaporators, compressors and condensers.

OVERVIEW

The Consultant system is a state of the art graphical front end for industrial and supermarket refrigeration monitoring and control. Its ability to support either touch-screen or keyboard and mouse operation combined with a windowing interface make it easy to understand and use.



The Consultant system provides the following facilities:

- Continuous monitoring of all information supported by remote control and monitoring units. This includes setpoints, alarm limits, configuration data, etc, as well as continuously updating values.
- Mimic (graphical) representations of the current state of the whole site, up to 8 separate areas within it.
- Mimic representations of the current state of individual items as reported by remote control and monitoring units.
- Logging of all data once every minute and recording this for up to one year (all data is recorded, including setpoints, alarm limits, configuration data, etc).
- Graph displays of the performance of remote units. Up to 8 graphs with 8 traces each may be configured (including allowing retrospective graphing).
- Logging of all alarm events that occur for up to one year, with identification of all alarms that are pending or require a user to acknowledge them.
- Flexible alarm archive search capability that allows patterns of alarm events to be assessed.
- Logging of the last 10000 events that have occurred within the system (user activities, system activities, alarm assertions, alarm clear-downs, etc).
- Ability to adjust parameters associated with remote control and monitoring units.
- User administration facilities that allow the secure operation of the system and to allow audit tracing of user actions.
- Front-end alarming of temperatures associated with evaporators (e.g. display cases or cold-storage rooms) in order to implement the latest food safety policies of the site owner.
- Integration of control and monitoring equipment from many different suppliers.
- Some (specifically limited) control and override capabilities.

DISPLAY OPERATION

Toolbar Buttons

Users interact with the Consultant system via either a touch screen or a mouse. Most simple operations can be carried out either by touching or pointing at an item on a mimic (diagram or picture) or clicking on a toolbar button.

The toolbar is visible at the bottom of the screen on all pages:



As different pages of information are displayed, different toolbar buttons will be made available. Different toolbar buttons are available dependent on the access level of the user password logged on.



Some buttons appear on the toolbar of most displays.

Provided the *Consultant* system is fitted with a printer, touching or clicking on the “Print “ button may be used to provide a hardcopy of the screen on display.



Touching or clicking with the mouse on the “Main Menu” button always returns the screen to the Site Mimic (Main Overview) display as shown on page 6



Touching or clicking with the mouse on the “Back” button always returns the screen to the display screen previously selected.



Touching or clicking with the mouse on the “Previous” button always displays the same display screen for the previous unit.



Touching or clicking with the mouse on the “Next” button always displays the same display screen for the next unit in sequence.

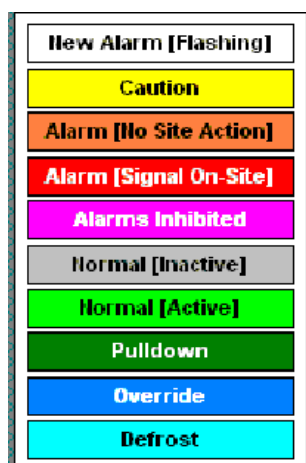


Touching or clicking with the mouse on the “Alarm” button always displays the Current Alarm display.

For details of how to **Accept** an Alarm event see ALARM SYSTEM page 13

Site Mimic (Main Overview)

The display shows a mimic representation of the site. This overview indicates the state of all control and monitoring units that are connected to it. When Consultant is being used within a supermarket environment (where there are large numbers of remote units) this view is typically that of the sales floor cases. On sites with fewer remote units (such as smaller convenience stores or industrial sites) it is likely that all of the units will be shown.



Each unit shown on the overview mimic is coloured to indicate its current operating state, or if it has fault conditions pending, an indication of the most serious fault is shown instead.

The colour key defines how the status of each unit is identified.

If there is not enough room on the mimic for all of the units supported by the system then there will usually be one or more "area buttons".

An area button indicates the most severe alarm that is pending in the area to which it relates, or is coloured grey to indicate that no alarms are pending.

In the example above **Plant** is red for alarm, **Coldrooms** are grey for no alarms.

Site Detail

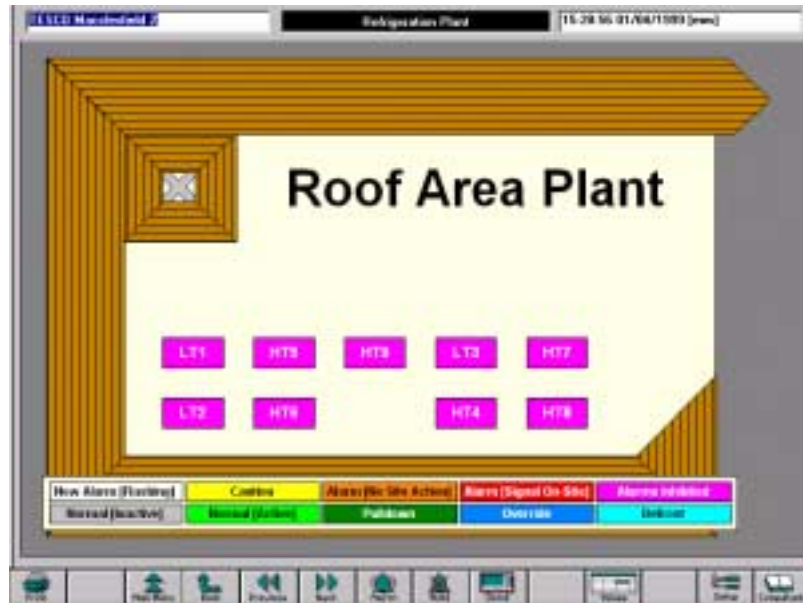
The site detail page shows the same information as the site mimic page, however it shows it as a list of all units on the site instead of graphically.

Area Mimic (Area Overview)

An area mimic is used to show a detailed overview of units within an area of the site.

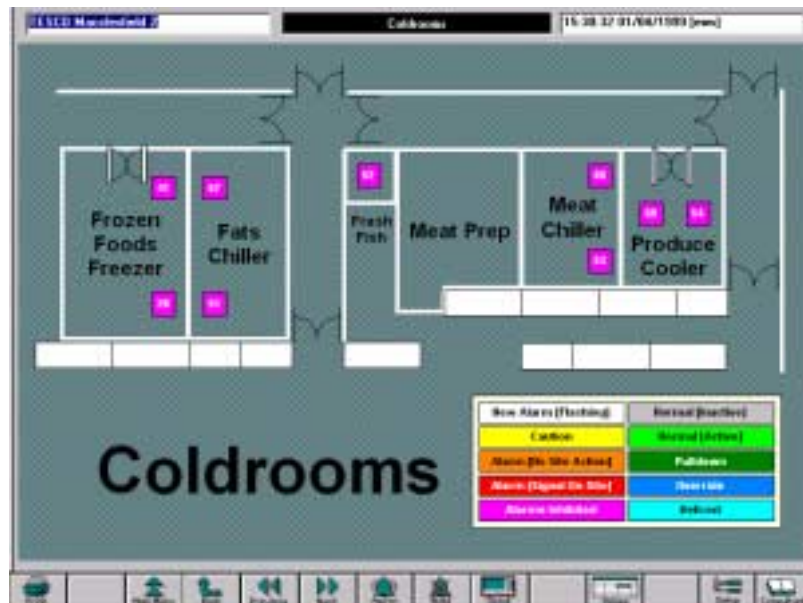
One area view may geographically overlap another, and may or may not indicate information that could be found on the site mimic display.

For example, touching or clicking the **Plant** button on the Site Mimic might display roof top compressors opposite



or selection the **Coldroom** button might display the coldroom layout

Touching or clicking on the



individual units displays the unit mimic as shown on page 10

Area Detail

The area detail page shows the same information as the area mimic page, however it shows it as a list of all units within the area instead of graphically.

Area Values

It is often useful to be able to look at sets of key status information for all units within an area in tabular form. The area values display allows for the same 6 data points to be shown as a table for all of the units within the area.

Current Alarms

The alarm list shows all of the alarms that have occurred and whether or not they have cleared or been accepted. The column marked "Action" shows "A" for an accepted alarm, "C" for a cleared alarm, "+" for an engineering alarm and "!" for an alarm which has had a comment logged by the user who accepted it. The "Time & Date" column shows the time at which an alarm occurred. "Unit" and "System" both indicate details of the unit that had the alarm event. The "Point Name" and "Severity" columns indicate the type of fault.

Individual alarm events can be viewed by selecting them by touching with a finger or with the mouse if fitted. Alternatively this can be done or by touching or clicking on the buttons on the left-hand side of the screen with the mouse

If there is more than one screen-full of alarm events, a moving the scroll bar appears on the right hand side of the display.


Alarm events can be selected by touching the scroll bar with a finger and dragging it down or with the mouse by clicking on the scroll bar and holding down the left mouse button whilst moving the mouse.

If the alarm that has been selected has not been accepted it will be shown in red.

In addition, a new button marked "Accept" will be shown.

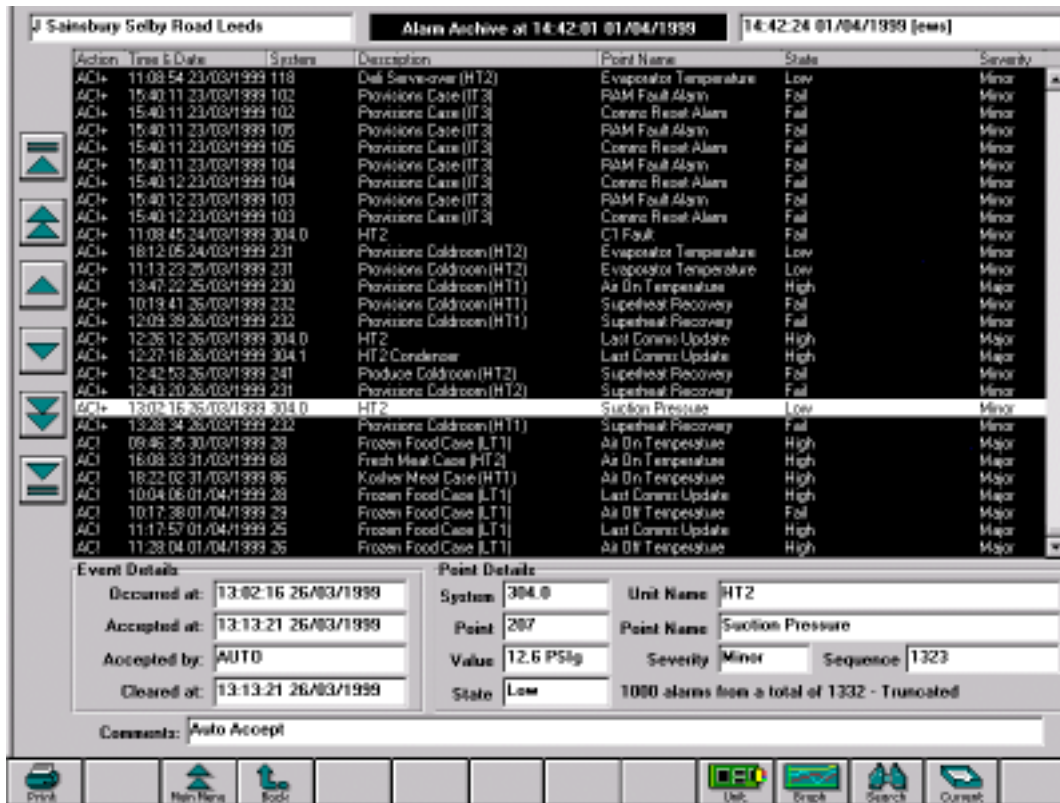
When alarms have been accepted and cleared they automatically disappear from the Current Alarm display and are transferred into the Archive Alarm display.

For details of how to **Mute** and **Accept** an Alarm event see ALARM SYSTEM page 13



The screenshot displays the 'Current Alarms - All Units' window. The top bar shows 'FESD Macclesfield 2', 'Current Alarms - All Units', and the time '21:45:54 01/04/1999'. The main area is a table of alarms with columns for Action, Time & Date, Unit, System, Description, Point Name, Severity, and Comments. The table lists multiple 'HT9' alarms for 'Fruit & Veg Mulchdeck' and 'Salad Mulchdeck'. The last row is highlighted in red, indicating an unaccepted alarm: 'System: System Unit', 'Analogue Input 1', 'High', 'Major', 'Sequence 184'. Below the table, the 'Event Details' section shows: Occurred at: 15:31:18 01/04/1999, Accepted at: (empty), Accepted by: (empty), Cleared at: (empty). The 'Point Details' section shows: System: System, Unit Name: System Unit, Point: 1, Point Name: Analogue Input 1, Value: (empty), Severity: Major, Sequence: 184, State: High. A 'Comments' field is also present.

Alarm Archive



The screenshot displays the 'Alarm Archive' window for 'Sainsbury Selby Road Leeds'. The main window title is 'Alarm Archive at 14:42:01 01/04/1999' with a sub-header '14:42:24 01/04/1999 [ews]'. The main area contains a table of alarm events:

Action	Time & Date	System	Description	Point Name	State	Severity
ACI+	11:08:54 23/03/1999	118	Del. Servis-over (HT2)	Evaporator Temperature	Low	Minor
ACI+	15:40:11 23/03/1999	102	Provisions Case (IT 3)	RAM Fault Alarm	Fail	Minor
ACI+	15:40:11 23/03/1999	102	Provisions Case (IT 3)	Comenz Reset Alarm	Fail	Minor
ACI+	15:40:11 23/03/1999	105	Provisions Case (IT 3)	RAM Fault Alarm	Fail	Minor
ACI+	15:40:11 23/03/1999	105	Provisions Case (IT 3)	Comenz Reset Alarm	Fail	Minor
ACI+	15:40:11 23/03/1999	104	Provisions Case (IT 3)	RAM Fault Alarm	Fail	Minor
ACI+	15:40:12 23/03/1999	104	Provisions Case (IT 3)	Comenz Reset Alarm	Fail	Minor
ACI+	15:40:12 23/03/1999	103	Provisions Case (IT 3)	RAM Fault Alarm	Fail	Minor
ACI+	15:40:12 23/03/1999	103	Provisions Case (IT 3)	Comenz Reset Alarm	Fail	Minor
ACI+	11:08:45 24/03/1999	304.0	HT2	CT Fault	Fail	Minor
ACI+	18:12:05 24/03/1999	231	Provisions Coldroom (HT2)	Evaporator Temperature	Low	Minor
ACI+	11:13:23 25/03/1999	231	Provisions Coldroom (HT2)	Evaporator Temperature	Low	Minor
ACI	13:47:22 25/03/1999	230	Provisions Coldroom (HT1)	Air On Temperature	High	Major
ACI+	10:18:41 26/03/1999	232	Provisions Coldroom (HT1)	Supersat Recovery	Fail	Minor
ACI+	12:09:39 26/03/1999	232	Provisions Coldroom (HT1)	Supersat Recovery	Fail	Minor
ACI+	12:26:12 26/03/1999	304.0	HT2	Last Comenz Update	High	Major
ACI+	12:27:18 26/03/1999	304.1	HT2 Condenser	Last Comenz Update	High	Major
ACI+	12:42:53 26/03/1999	241	Produce Coldroom (HT2)	Supersat Recovery	Fail	Minor
ACI+	12:43:20 26/03/1999	231	Provisions Coldroom (HT2)	Supersat Recovery	Fail	Minor
ACI+	13:02:16 26/03/1999	304.0	HT2	Suction Pressure	Low	Minor
ACI+	13:28:34 26/03/1999	232	Provisions Coldroom (HT1)	Supersat Recovery	Fail	Minor
ACI	09:46:35 30/03/1999	28	Frozen Food Case (LT1)	Air On Temperature	High	Major
ACI	16:08:33 31/03/1999	68	Fresh Meat Case (HT 2)	Air On Temperature	High	Major
ACI	18:22:02 31/03/1999	86	Kosher Meat Case (HT1)	Air On Temperature	High	Major
ACI	10:04:06 01/04/1999	28	Frozen Food Case (LT1)	Last Comenz Update	High	Major
ACI	10:17:38 01/04/1999	28	Frozen Food Case (LT1)	Air On Temperature	Fail	Major
ACI	11:17:57 01/04/1999	25	Frozen Food Case (LT1)	Last Comenz Update	High	Major
ACI	11:28:04 01/04/1999	25	Frozen Food Case (LT1)	Air On Temperature	High	Major

Below the table, there are sections for 'Event Details' and 'Point Details'. The 'Event Details' section shows: Occurred at: 13:02:16 26/03/1999, Accepted at: 13:13:21 26/03/1999, Accepted by: AUTO, Cleared at: 13:13:21 26/03/1999. The 'Point Details' section shows: System: 304.0, Unit Name: HT2, Point: 207, Point Name: Suction Pressure, Value: 12.6 PSiG, Severity: Minor, Sequence: 1323. A note at the bottom of the details section reads: '1000 alarms from a total of 1332 - Truncated'. A 'Comments' field contains 'Auto Accept'. At the bottom of the window, there are several icons: 'Print', 'New News', 'Tools', 'Unit', 'Graph', 'Search', and 'Current'.

The Alarm Archive display may be selected by touching or clicking on the “Archive” button.

Individual alarm events can be viewed by selecting them by touching with a finger or with the mouse if fitted. Alternatively this can be done by touching or clicking on the buttons on the left-hand side of the screen with the mouse or using the scrollbar.

This display has a button marked “Current” which when selected allows return back to the Current Alarm display

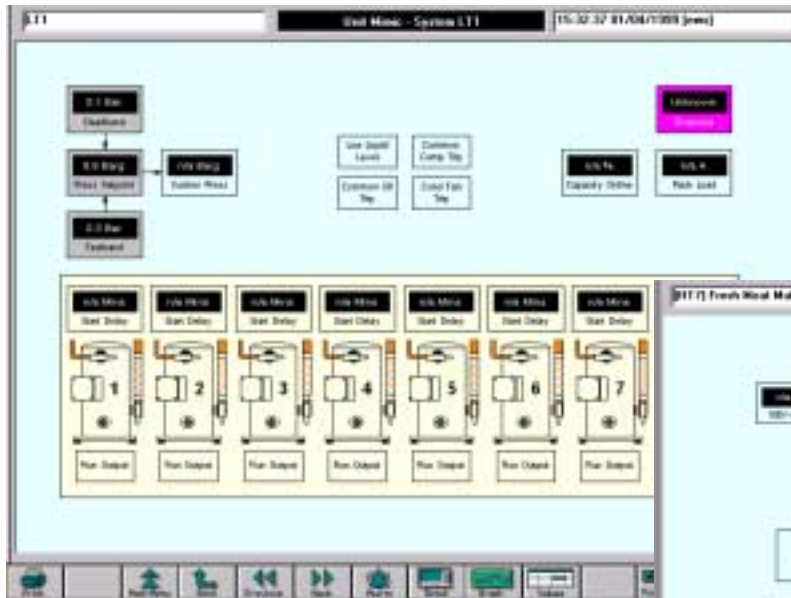
The “Unit” button allows display of the current status mimic of the unit and selecting the “Graph” button displays graphical values at the time of the alarm event.

The “Search” button allows display of a group of alarms selected by various search criteria such as all alarms for a particular unit or all high alarms for a particular month.

Unit Mimic (Unit Status Overview)

This mimic is displayed when the particular unit has been selected by touching or clicking with the mouse on a Site Overview or Area Mimic display

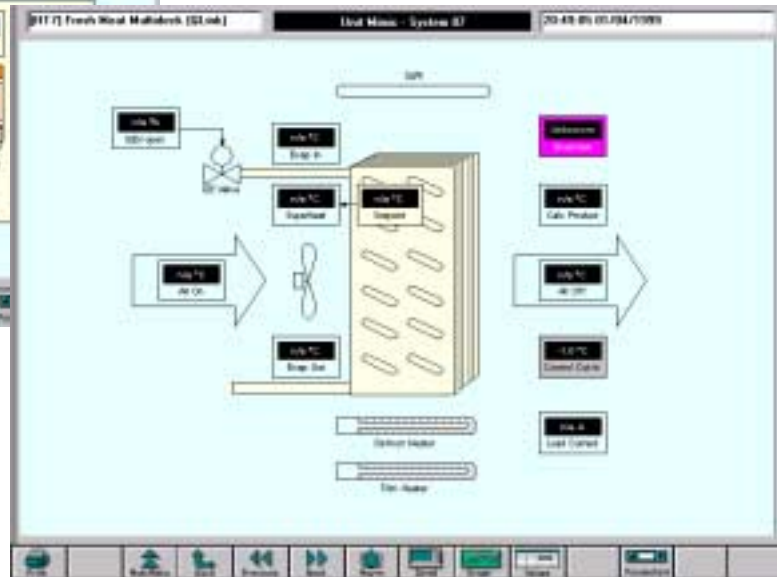
The display shows a mimic representation of the status of a particular display case, cold room cooler, condenser or compressor. This overview indicates the state of all control and monitoring devices, such as valves, heaters, motors, temperature and pressure measurement values, that are connected to the selected unit.



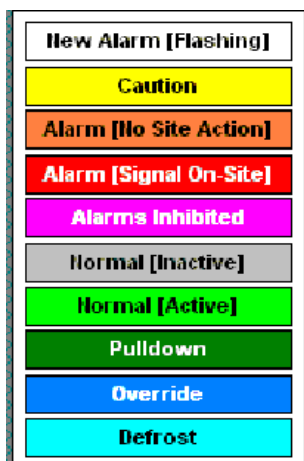
Example of Compressor Unit mimic

Each device shown on the Unit Mimic is coloured to indicate its current operating state.

If it has fault conditions pending, an indication of the most serious



fault is shown instead.



The colour key below defines how the status of each unit is identified.
Example of Display Case Unit mimic

Unit Detail

Touching or clicking on the "Detail" button gives a composite display for the unit which includes the Mimic, Tabular values, the Graph display for today and a list of the current alarm messages.

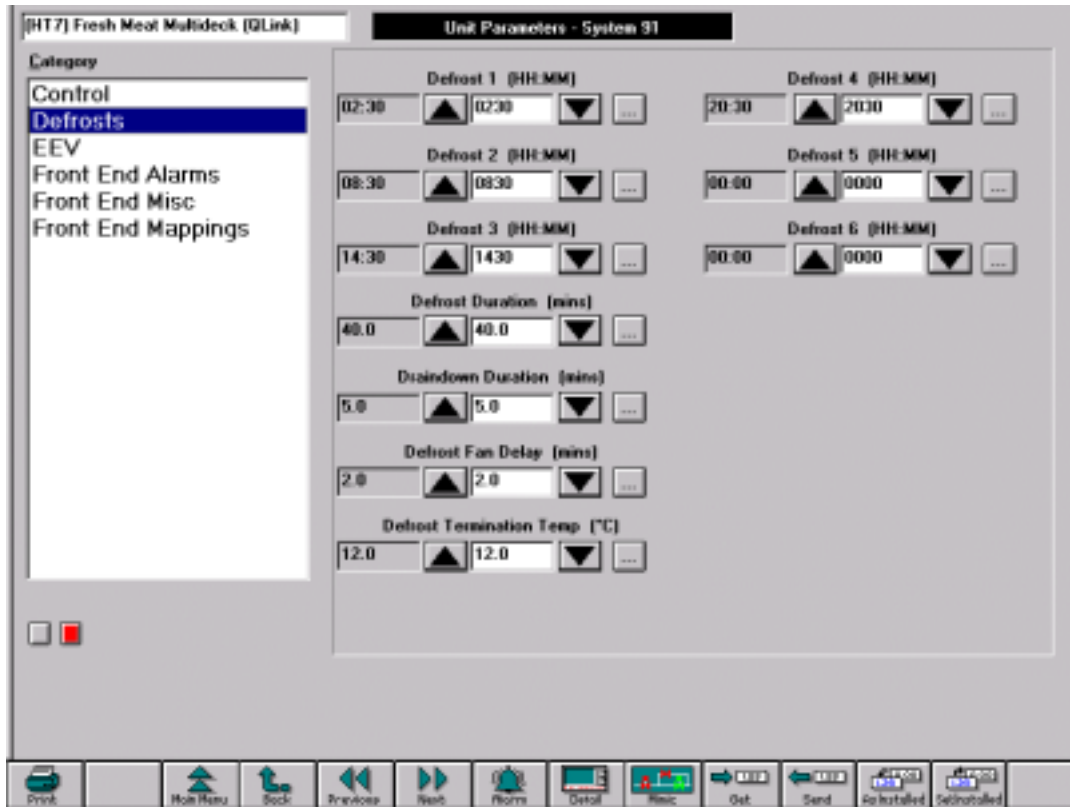
Unit Values

Touching or clicking on the "Values" button gives a display the major measurement, status and address identification values for the unit in tabular form.

Unit Parameters

Touching or clicking on the “Parameters” button gives a display of unit parameters and settings. These parameters vary for each different unit type dependent on the complexity of the control requirements.

The ability to change particular parameters is dependent on the user access level of the user logged on



to the system

Each unit has a number of pages of Parameter category displays

The display for a particular Parameter Category is selected by touching or clicking the mouse on one of the items in the category list at the left side of the display.

Parameters are changed using the up / down arrow buttons.

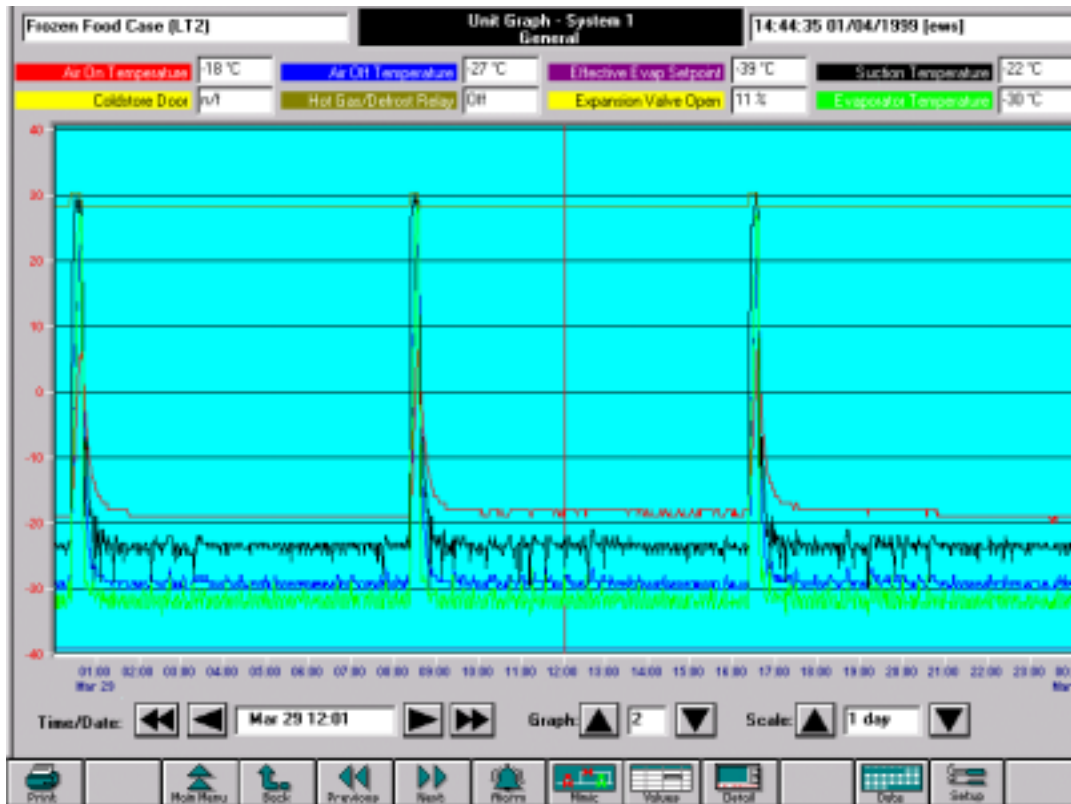
Parameter changes are sent to the appropriate controller using the “Send” button.

Unit Graphs

Touching or clicking on the “Graph” button gives a display of unit values and measurements as a graphical display.

The values or states displayed vary for each different unit type dependent on the complexity of the control requirements.

Up to 8 values can be displayed on each graph. The identity, colour and value of each graph is



indicated at the top of the display. The values displayed are those selected by the marker at the middle of the screen

Up to 8 graphs may be displayed for each unit. Other graphs for the unit are displayed by raising or lowering the Graph Number.

Each value or data point is recorded every minute.

All data is saved on disc for the last 12 months.

The period covered by the graph is selected by raising or lowering the Graph Scale.

The graph can be scaled to display from:- 1 hour, 8 hours, 1 day, 1 week, 1 month up to 1 year.

Touching or clicking the mouse on a particular section of the graph which is of interest results in that section being displayed in the centre of the screen at the next lower scale.

The graph can be moved along its axis quickly or slowly using the double or single arrow buttons.

The graph for a particular day and month can be selected after touching or clicking the “Date” button which displays a window for day and month selection.

When selected from an Alarm display, the Unit Graph displays Graph 1 on a 1 day scale with the time of the alarm at the centre of the screen.

ALARM SYSTEM

If an alarm occurs on the refrigeration alarm system, the sounder on the alarm panel will activate and the alarm lamp will start to flash.

In order to silence the alarm and accept responsibility for actioning the alarm procedure, the *Consultant* PC system requires an authorised user to log-on and accept the alarm event. An authorised user will have been provided with a user access code and password.

If you do not know your password then contact your manager or refrigeration contractor.



Main Menu Button

The system front screen is accessible at all times by touching or using the mouse to click the “Main menu” button:

The front screen shows a representation of the refrigerated areas managed by the *Consultant* system. The colour of each unit shown on this screen indicates its current operating state, flashing indicates any



units that have unaccepted alarms. Minor alarms (shown in orange) are primarily of interest to engineers only. These will not cause the sounder in the stock area to activate



To log-on to the system, use the mouse to click the “Access” button:



Authorized User Password Log On

To log-on to the system, touch or use the mouse to click the "Access" button:



The system will prompt for your user name, and a valid system user identity should be entered via the keyboard by touching the keys or clicking with the mouse.

Use BS (Back space) if you mistype

Press OK when you have typed your user name correctly.



Once your user name has been entered and recognised, The system will ask for the password associated with the user name.

If the system does not recognise either the user name or password, it will display a message indicating the problem.

If this happens, click the OK button and try again.



If you do not know your user name or password then you must consult your manager or Refrigeration Contractor
When the password has been entered successfully then the Keyboard disappears.



Display Current Alarms

The Current Alarm list for the system is displayed when the "Alarm" button is touched or clicked with the mouse.



Time & Date	Unit	System	Point Name	Severity	Action
06:30:00	Guardian Lamp	Low Voltage	Low Voltage	High	A
06:30:00	Guardian Lamp	Low Voltage	Low Voltage	High	A
06:30:00	Guardian Lamp	Low Voltage	Low Voltage	High	A
06:30:00	Guardian Lamp	Low Voltage	Low Voltage	High	A
06:30:00	Guardian Lamp	Low Voltage	Low Voltage	High	A
06:30:00	Guardian Lamp	Low Voltage	Low Voltage	High	A
06:30:00	Guardian Lamp	Low Voltage	Low Voltage	High	A
06:30:00	Guardian Lamp	Low Voltage	Low Voltage	High	A
06:30:00	Guardian Lamp	Low Voltage	Low Voltage	High	A
06:30:00	Guardian Lamp	Low Voltage	Low Voltage	High	A

The Current Alarm list shows all of the alarms that have occurred and whether or not they have cleared or been accepted.

The column marked "Action" shows "A" for an accepted alarm, "C" for a cleared alarm, "+" for an engineering alarm and "!" for an alarm which has had a comment logged by the user who accepted it. The "Time & Date" column shows the time at which an alarm occurred. "Unit" and "System" both indicate details of the unit that had the alarm event. The "Point Name" and "Severity" columns indicate the type of fault.



Touch or click with the mouse on the "Mute" button to stop the audible alarm and the flashing Alarm Lamp or Beacon.

Individual alarm events can be viewed by selecting them by touching with a finger or with the mouse if fitted.

If there is more than one screen-full of alarm events, the other alarms can be viewed by moving the scroll bar on the right hand side of the display. This can be done or by touching or clicking on the buttons on the left-hand side of the screen with the mouse.

Alternatively, touching the scroll bar with a finger by and dragging it down or with the mouse by clicking on the scroll bar and holding down the left mouse button whilst moving the mouse.



If the alarm that has been selected has not been accepted it will be shown in red. In addition, a new button marked "Accept" will normally be shown.

The "Accept" button will only appear if the user password logged on has the necessary access level. To accept the alarm, touch or click on this button with the mouse.

The system will prompt for a comment to be entered against the alarm. The comment can be used to notify other users of some event related to the alarm condition. If no comment is required, click the mouse on the OK button to complete acceptance of the alarm.

Once the alarm has been accepted the details of the time at which the acceptance took place and the user who performed the task will be logged. This information is recorded for auditing purposes.

When all of the alarms have been accepted the sounder in the stock area will deactivate and the alarm lamp will stop flashing. The lamp will only go out when all alarms have been cleared as well as accepted. Alarm clearance is automatically detected by the system.

Having completed the alarm acceptance procedure, return to the main screen by using the mouse to click the "Main Menu" screen, and log-out from the system by clicking on the "Access" button. A message will be displayed to indicate that the log-out has occurred, the mouse should be used to click on the "OK" button.

PASSWORD ALLOCATION

Prior to changing any controller parameter or accepting an alarm on the Consultant system, it is necessary to log on to the system with a valid user name and password that is recognised by the system, as previously described in Authorized User Password Log On on page 14.

Consultant provides a very secure yet flexible security access system for multiple users, each of which has their own password and access authority for any of the areas of the store.

User names may be specific (eg Steve, Jane, B.Smith), or generic (eg Manager, Service,).

Each **user name** has an associated **password** which allows system access at one of eight different levels for each of eight areas.

All parameter changes and alarm accept actions are recorded in the Event Log (see page) with the time and date of the event and the User Name logged on when the event occurred.

Dependent on access level, certain facilities and buttons are inhibited or not displayed for that user.

Any authorized user may set up other user names and passwords which have the same or lower system access facilities. For example the store manager can setup the deputy manager with the same facilities as himself and ten other staff with lower level access.





Case Cleaning
Consultant
Engineering Menu
Event Log
Defrost