GUARDIAN AUTOGRAPH TERMINAL

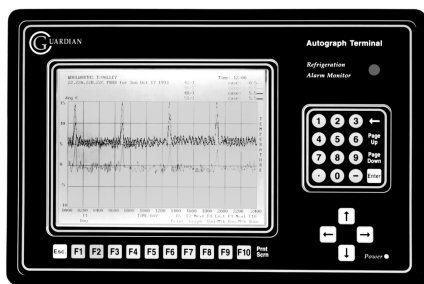## for Refrigeration Monitor and Control

- **Colour History Graphs and data display**

- **Automatic daily graph printouts**

- **One year graph data storage**

- **Menu access for displays, limits, setpoints**

- **Plant Overview display with temperature and plant fail alarm indication**

- **Printout of Alarm messages and Alarm List**

- **Remote control mode and setpoint selection**

- **Remote operation via modems**

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Operation and Setup Manual

GUARDIAN AUTOGRAPH Terminals provide centralised data recording, display, control, graph and alarm facilities for up to 250 GUARDIAN Refrigeration monitor or control units used in cold stores, supermarkets and food production applications.
The Autograph Terminal Software runs on any modern IBM compatible PC or Laptop

Contents

GETTING STARTED

Guardian Products provide refrigeration engineers with

- **ULTIMATE FLEXIBILITY**
- **ASSURED MONITORING**
- **RELIABLE ALARMS**

This manual provides refrigeration designers, engineers, installers, service mechanics and supermarket personnel with the necessary information to achieve the above objectives.

All users require to know a few basic facts about the Autograph Terminal system before successfully starting to perform their design, commissioning, maintenance or operating functions.

The GUARDIAN AUTOGRAPH Terminal is a combination of PC hardware and user configurable software which provides refrigeration control and monitoring facilities in cold stores, supermarkets and food production applications.

Autograph Terminal Software is common to all applications and runs on any modern IBM compatible PC or Laptop. The programs can run on MSDOS based systems or as a task under a WINDOWS /95 /97 /NT operating system..

 Autograph Terminal PC hardware may be configured in a number of different ways dependent on customer application, available PCs hardware, system philosophy and refrigeration temperature monitoring and control requirements.

GUARDIAN Autograph Terminals can communicate with   up to 250 GUARDIAN Refrigeration monitor or control units via a RS485 highway and can be accessed remotely via modems and the telephone network.
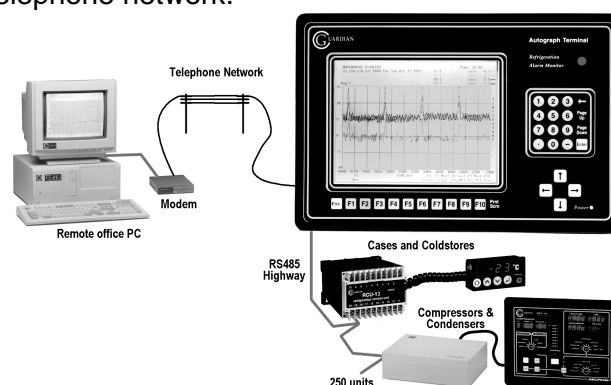
The system is operated by using function buttons F1 to F10 to select one of a number of MAIN MENU choices on the PC screen.. The resultant screen display allows further function button F1 to F10 selection from Sub.Menus displayed at the bottom.

In order to simplify user operation and to provide security for the system configuration settings, the PASSWORD entered by a person determines the MAIN MENU choices displayed and the system functions available for use

AUTOGRAPH SYSTEM FUNCTIONS

GENERAL

GUARDIAN AUTOGRAPH Terminals provide centralised data recording, display, control, graph and alarm facilities for up to 250 GUARDIAN Refrigeration monitor or control units.

ALARMS

Alarms are generated if any temperature, pressure or alarm trip condition exceeds the preset limits for longer than the specified guard time. Dependent on the system configuration, alarms may be arranged to give an alarm message on the site printer or in remote offices via a modem or teledialler.

DISPLAYS

Facilities are provided for continuous graphical or tabular display of all temperatures, pressures, levels and alarm states together with alarm messages in the alarm history.

SETPOINTS & LIMITS

The PC keyboard may be used, with the correct security password, to modify alarm settings, control setpoints, limits, delays, defrost timeclock settings, graph formats and probe descriptions .

CONTROL MODES

The AUTOGRAPH system provides facilities for display and selection of compressor control mode (Reset, OFF / LOCAL / REMOTE) and case system system control modes (Defrost, AUTO / FANS / OFF).

DATA RECORDING

Analogue measurements and digital states from each refrigeration Monitor or controller may be recorded every minute for the last month on the hard disc of the Autograph Terminal PC. An optional configuration selection stores 30 minute average graph values for a full 12 month archive.

GRAPH DISPLAY

The recorded data may be selected, displayed and printed in monochrome or colour as a History graph with up to 4 points per graph. Graphs are available for each month day plus 3-hour averages for the whole of this month and last month.
Monthly data may be archived as 30 minute averages for 12 months .
Selected graphs may be printed out automatically each day.
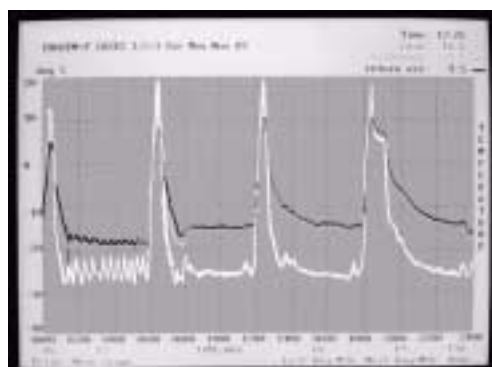
USEFUL PREREQUISITES

a) the normal use of the PC keyboard , data entry and special function buttons should be fully understood

b) The Autograph Software must be configured to expect the correct type of controller device at any specified address.

c) All GUARDIAN controllers need to be set up with the correct system number, highway address and unit model selection plus other basic settings for setpoints, timers and limits. Some of these settings need to be done using the SKD.9 Keyswitch Display, so the understanding of the button operation of this unit is essential. The Details for each controller are given in the appropriate product OPERATION & SETUP MANUAL.

d) Since each controller can be configured in a number of different ways to perform flexible refrigeration control then an understanding of how to find out what unit model is currently selected, what it does and how it is connected, is also necessary.

KEYBOARD BUTTON OPERATION

The GUARDIAN AUTOGRAPH Terminal is normally started by rebooting the PC or typing **GUARDIAN** followed by the 'Enter' key.

The system displays a MAIN MENU where menu selections requires the use of keyboard function keys 'F1' to 'F10' or cursor down arrow followed by the 'Enter' key.

Each menu selection display then provides other sub-menu function key prompts on the bottom two lines of the display.

Standard operation of the keyboard buttons below is as follows:.

Function Keys

In addition to 'F1' to 'F10' and 'Enter' keys , the system uses the 'Esc' key and cursor functions keys :- Up, Down, Left, Right, PgUp, PgDn which normally perform the following functions on sub-menus.

F1 Edit	displays standard edit menu for system setup, printing and archive facilities of the item elected by cursor line.
F2 Detail	displays more detail of the item selected by cursor line.
F9 Next_Page	displays the next page in sequence of the selected menu
F10 Done	returns to the previous higher level menu

Standard Keys

Enter	Enters a name or number change
Esc	**E**scapes from the last selection without changing any settings or returns to the higher level menu the same as pressing function F10
PgDn ,PgUp	Page_Down selects the next display page in sequence, the same as pressing function F9
	page up selects the previous display page in sequence
Up arrow	moves the cursor line up one line If on first line acts the same as page up
Down arrow	moves the cursor line down one line. If on last line then acts the same as page down
Left arrow	
or right_arrow	move the cursor one character during text editing.

UNIT MODELS

AUTOGRAPH TERMINALS

Guardian Autograph systems may be configured in a number of different ways dependent on customer application , available PC hardware, system philosophy and refrigeration temperature monitoring and control requirements.
This section gives details of the PC hardware options available for running the Autograph Terminal Software.
Autograph Terminal Software is common to all applications and runs on any modern IBM compatible PC or Laptop. The programs can run on MSDOS based systems or as a task under a WINDOWS /95 /NT operating system..
 The Autograph Software is a MSDOS based package which normally runs on a dedicated PC in the **C:\GUARDIAN** directory. The Software will run as a WINDOWS 95 97application but all alarm printing functions do not use Windows drivers and go direct to the printer.
The GUARDIAN Part Number for a copy of the Autograph Software is MG0020

Available Terminal Hardware Options

The Autograph Terminal system software runs on an IBM compatible PC with a minimum of 100 mbyte hard disc and communicates with the refrigerated cases, coldrooms, condensers and compressors via a serial PC port and a RS232 to RS485 Converter **(MG0010)** which provides a multi.drop RS485 communication highway to all GUARDIAN control and monitoring units.
Refrigeration Temperatures, pressures, capacity, amps, control and alarm status are requested from each monitor or control unit connected to the highway.
If more than 32 controller units are required then a multiple highway RS485 Communications Unit **(MG0015)** is used to provide up to five RS485 serial communication highways each of which can drive 32 units. All alarm messages and graph reports are printed on the parallel printer port. Remote telephone access to the system requires a 28800 baud modem on a second serial port.

Hardware configurations which can be used with the Autograph Software include :.
* **IBM Compatible Laptop or notebook**
    with external MG010 RS232/485 converter
* **IBM Compatible 486/Pentium with colour monitor and keyboard** with optional printer and 28800 baud modem plus external **MG0010** or internal **MG0015** RS485 converters
* **IBM Compatible 486/Pentium** with internal **MG0015** 5.highway RS485 converter and optional printer and 28800 baud modem plus **AUTOGRAPH II (MG006)** panel mounting **colour LCD** monitor and mini keyboard
* **IBM Compatible 486/Pentium** with internal **MG0015** RS485 converter and optional printer and 28800 baud modem, plus panel mounting **AUTOGRAPH II (MG007)   monochrome LCD** monitor and mini keyboard .
* **IBM Compatible 486/Pentium** with optional printer and 28800 baud modem plus plantroom cubicle mounting **AUTOGRAPH panel (MG004) with colour LCD** monitor and membrane function keys and data keypad. This unit has a built in watchdog ,a 2.highway RS485 converter and alarm relay logic
* The above combination can be supplied as a complete **AUTOGRAPH TERMINAL (MG0003)** in a 600x400x200mm IP65 Wallbox

Colour LCD AUTOGRAPH Panel (MG004)

This panel provides colour LCD screen   and membrane function keys to IP65 when plantroom cubicle or wall box operation of the Autograph system is required.

In addition to the Colour LCD screen and function keys, the panel contains a flashing alarm lamp and beeper, a communications watchdog fail facility, alarm relay contacts for a teledialler and an alarm beacon plus two RS485 communication highways.

A Standard QWERTY keyboard can be plugged in for system setup if required.

The unit is supplied with an LCD interface card and all necessary cables to plug into an IBM compatible PC
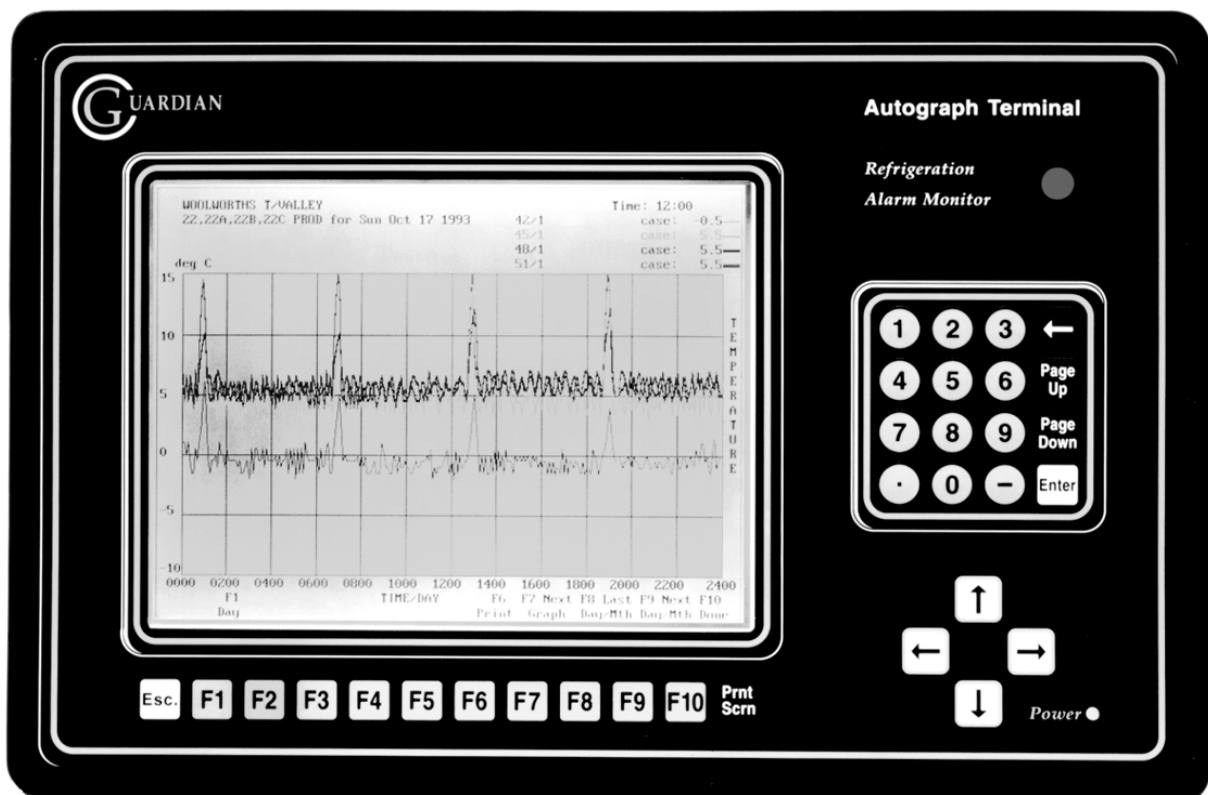
Colour Autograph Panel connections
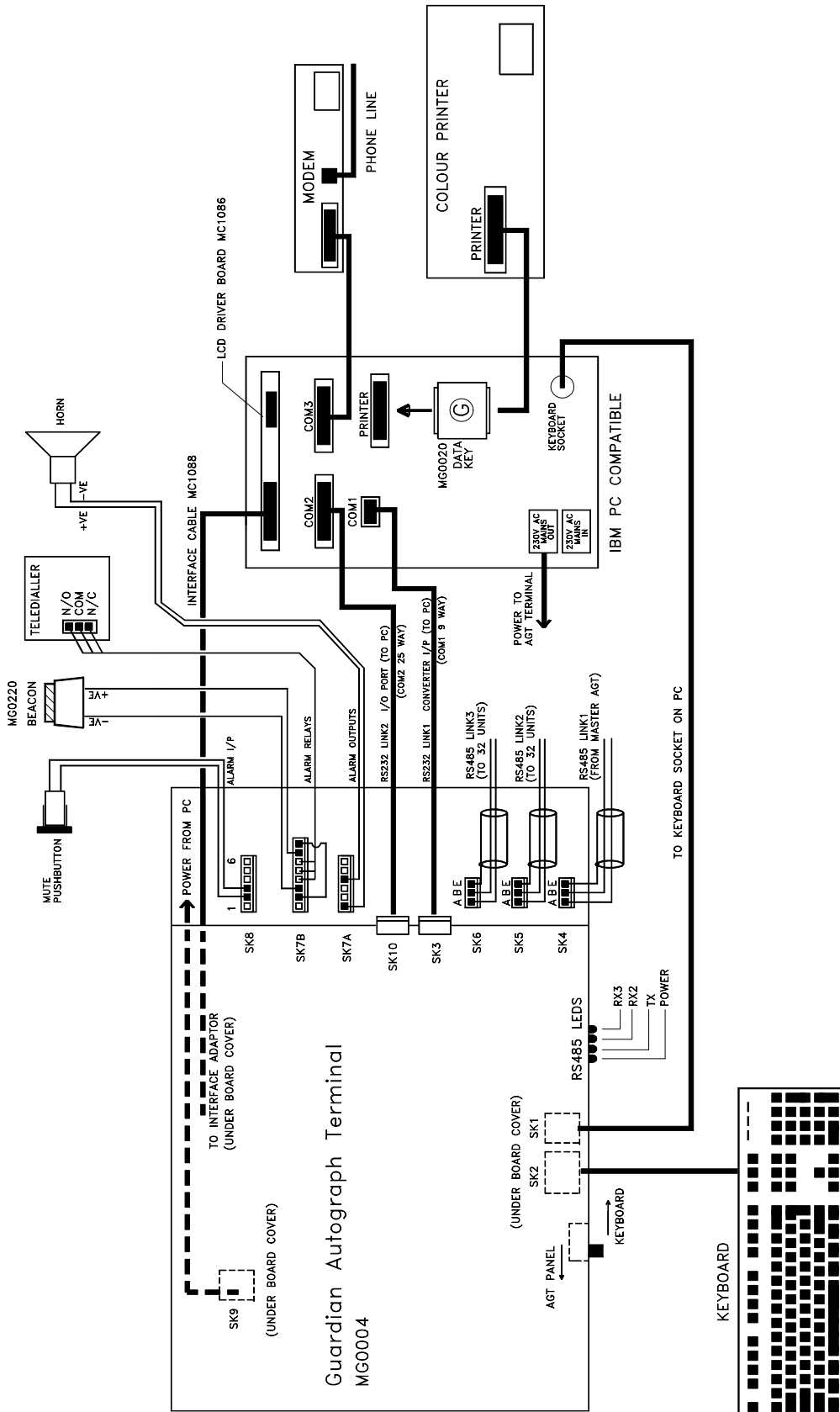
9.5" Colour LCD AUTOGRAPH II panel & mini keyboard (MG006)

9.5" Mono LCD AUTOGRAPH II panel & mini keyboard (MG007)

These panels provide respectively colour or monochrome LCD screens and incorporate a mini QWERTY keyboard for system operation and data entry when plantroom cubicle operation of the Autograph system is required. Both units are supplied with an LCD interface card and all necessary cables to plug into an IBM compatible PC

In addition to the Colour/Mono LCD screen and keyboard, the panel contains a MUTE button, a flashing alarm lamp and beeper which can be activated only by use of an additional RCU12 controller configured as an ALARM UNIT. The RCU12 Alarm Unit also provides a communications watchdog fail facility, alarm relay contacts for a teledialler and an alarm beacon.

RS485 communication highways are normally configured using the five highway RS485 Comms PC card.**(MG0015)**

Autograph II panel Layout
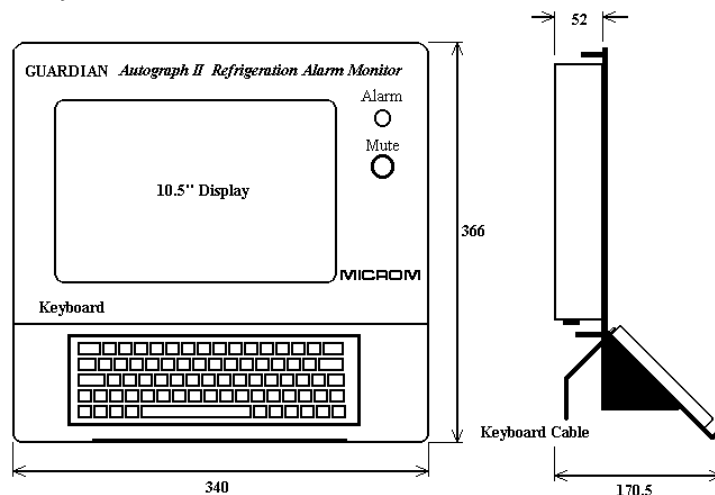
All Dimensions in mm.

Autograph II Panel Cutout Details
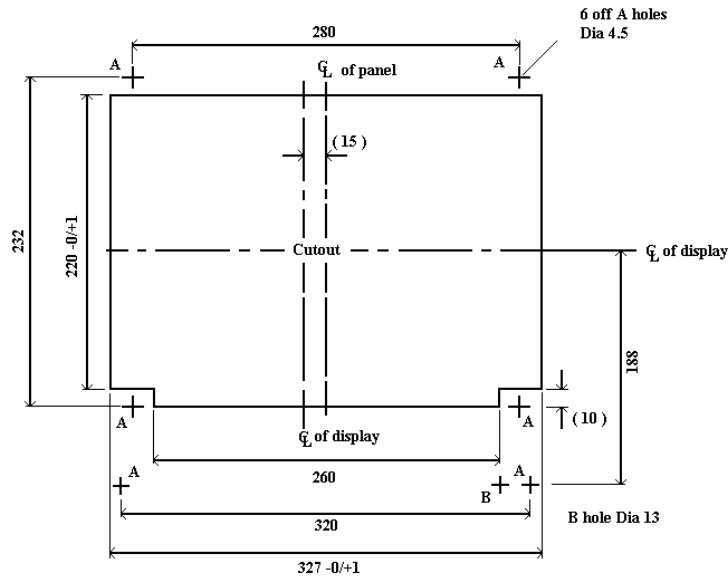
Fig 4.0

Autograph II Panel connections
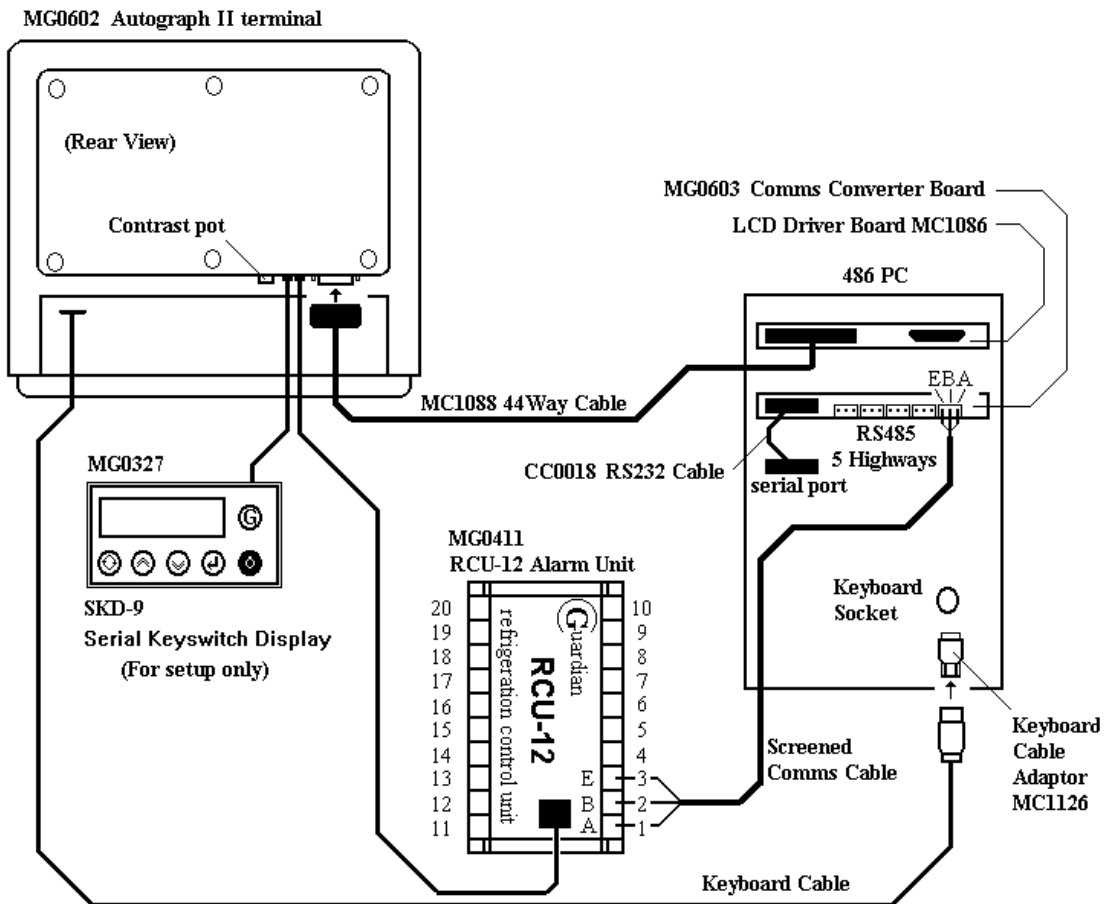
RCU-12 ALARM UNIT CONNECTION DETAILS
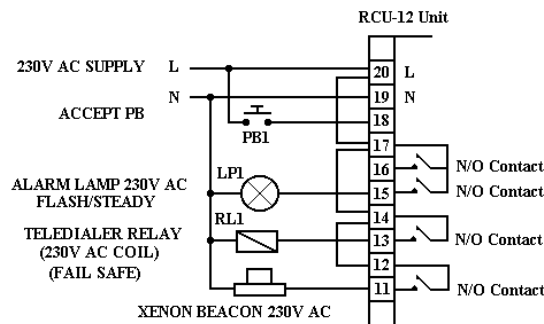
Fig 2.0

Alarm Timing Diagram
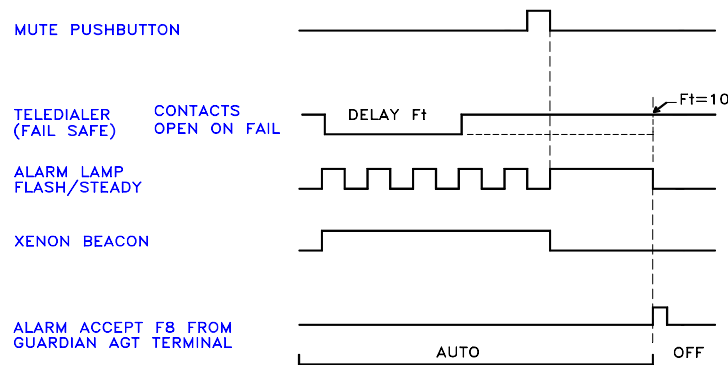
GUARDIAN RS232 / RS485 Converter Unit (MG0010)

The RS232 /485 Converter is a free standing unit which may be used to connect an IBM compatible PC or laptop PC to a GUARDIAN system which has no more than 32 controllers connected to its RS485 highway.

LED Indicators display the status of internal POWER, and RS485 communication transmit(TX)/receive(RX) activity

MG0010 units are supplied with an in.line mains transformer and a standard 9.core PC communication cable which normally plugs into the COM1 port of the PC.

TECHNICAL SPECIFICATION

Power Supply	12 Vdc @ 0.2 A / 9 Vac @ 0.2 A
Connection	(2.1mm)
Mode	RS232 / RS485
Data Rate	9600 bps Half Duplex
TX/RX selection	Timing 1.3ms RS232 trigger
Termination	RS485 end of line and failsafe bias
Indication	Power and RS485 RX / TX
Connection	RS232 9 D type / RS485 3 way pluggable terminal
Dimensions	115 x 65 x 45 mm
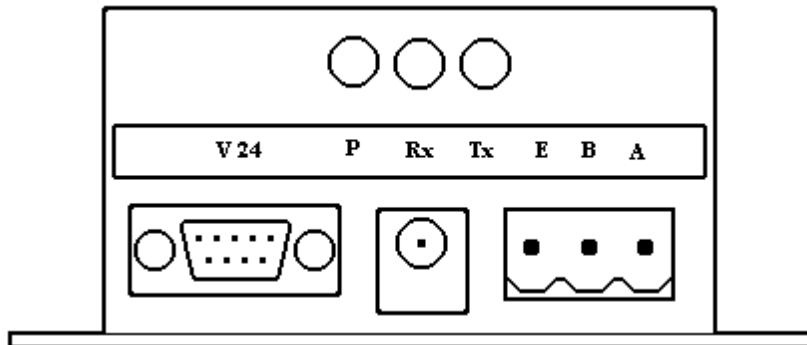
9.core plug   power in   RS485
to COM1 port   from   highway
on PC   transformer connecter

GUARDIAN 5.Highway RS485 Comms PC module(MG0015)

The 5..Highway RS485 Comms PC module is a printed circuit board which must be installed internally in an IBM compatible PC .

It provides five RS485 highway outlets, each of which can support 32 GUARDIAN controllers.

MG0015 units are supplied with a standard 9.core PC communication cable which normally plugs into the COM1 port of the PC.

TECHNICAL SPECIFICATION

Power Supply	12 Vdc @ 0.5 A from PC slot (used internally)
	9 Vac @ 0.5 A (used externally)
Mode	RS232/RS485 Split to To 5 RS485
Data Rate	9600 bps Half Duplex
TX/RX selection	Timing 1.3ms any input
Slave Function	Two units link for 10 RS485
Termination	RS485 end of line and failsafe bias
Protection	All signals fused 100mA / Supply fused 1A
Indication	Power and individual RX all channels
Connection	RS232 9 D type / RS485 3 way pluggable terminals
Dimensions	150 x 105 mm (ISA slot)

9V ac Supply

TB1
1
~ ~ E

FS1 1A

5 CHANNEL RS232 - RS485
COMMS CONVERTER PCB

FS2 - FS15 125mA

CN2
1

CN1

E
B   TB2   FS5
A   FS4
1

FS3
FS2

RS485 Input

Extension Connector

PC Card Edge Connector

FS6   1 A   RS485
FS7   TB3   B   Highway No.1
            E

FS8   1 A   RS485
FS9   TB4   B   Highway No.2
            E

FS10   1 A   RS485
FS11   TB5   B   Highway No.3
            E

FS12   1 A   RS485
FS13   TB6   B   Highway No.4
            E

FS14   1 A   RS485
FS15   TB7   B   Highway No.5
            E

RS232 Input
9way D type skt

CC0018
RS232 Cable
to PC
Serial Port

GUARDIAN 8.Highway RS485 Comms Unit (MN0211)

The 8..Highway RS485 Comms PC module is a euro card sized PCB (3003) which is fitted into a standard Eurocard case. It is normally used where two different operators need to access the system from two different PC locations ie the main system on the manager's desk and a laptop plug in facility in the plantroom. The normal mounting for this configuration is inside a plantroom panel where it provides eight RS485 highway outlets, each of which can support 32 GUARDIAN controllers. The PC Terminal in the manager's office uses a MG0010 converter to send a RS485 highway between the two converters

MN0211 units are supplied with a standard 9.core PC communication cable which normally plugs into the COM1 port of a laptop PC.

Highway wiring is connected via a 36 core cable which plugs into the rear of the module.

TECHNICAL SPECIFICATION

Power Supply	12 V AC @ 1A
Mode	RS485 Split to To 8 RS485
	Master RS232 override
Data Rate	9600 bps Half Duplex
TX/RX selection	Timing 1.3ms RS485 inputs
	RS232 override 2.8 s
Termination	RS485 end of line and failsafe bias

Protection	Supply fused 2A
Indication	Power and individual RX all channels
Connection	RS232 9 D type, RS485 + RS232 via Din 4162
Dimensions	160 x 100 mm (Eurocard)
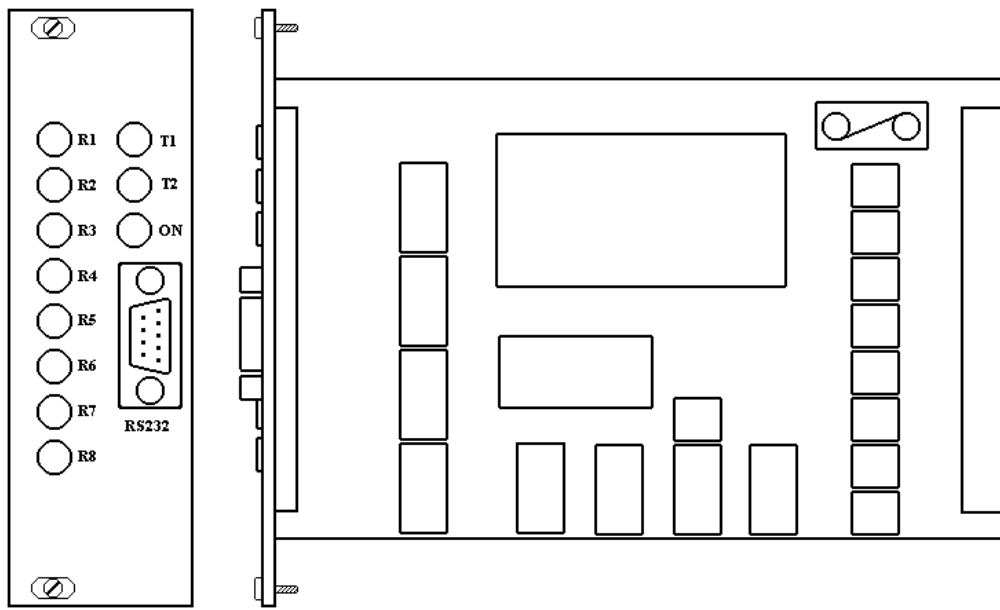
8.Highway RS485 Comms Unit Connections

Signal Identifier	DIN 41612 Connector	19" Rack Backplane	CV 1000 Enclosure	Eurocard Enclosure	Cable Code
LIVE	----	----	T 1	External PSU	----
NEUTRAL	----	----	T 2	External PSU	----
EARTH	----	SK 14 - D EARTH (2)	T 3	DIN (3) P 2 D (25) SHELL	GRN / YEL
0 VAC	4A 4C	SK 13 - D 0 VAC	----	DIN (3) P 3	----
12 VAC	2A 2C	SK 13 - D 12 VAC	----	DIN (3) P 1	----
RS232	6A 6C 8A 10A	Front D (9) Rear D (9)	Front D (9)	Front D (9)	----
MK 5 - A	14 A	SK 1 - B 1	T 28	D (25) P 9	RD / BK
MK 5 - B	14 C	SK 1 - B 2	T 29	D (25) P 22	RD / BN
MK 5 - E	----	SK 1 - B 3	----	----	
HW 1 - A	16 A	SK 1 - C 1	T 25	D (25) P 8	YW / RD
HW 1 - B	16 C	SK 1 - C 2	T 26	D (25) P 21	WE / RD
HW 1 - E	----	----	T 27	----	----
HW 2 - A	18 A	SK 1 - D 1	T 22	D (25) P 7	RD / BE
HW 2 - B	18 C	SK 1 - D 2	T 23	D (25) P 20	GN / RD
HW 2 - E	----	----	T 24	----	----
HW 3 - A	20 A	SK 1 - E 1	T 19	D (25) P 6	TE
HW 3 - B	20 C	SK 1 - E 2	T 20	D (25) P 19	GY
HW 3 - E	----	----	T 21	----	-----
HW 4 - A	22 A	SK 1 - F 1	T 16	D (25) P 5	OE
HW 4 - B	22 C	SK 1 - F 2	T 17	D (25) P 18	PK
HW 4 - E	----	----	T 18	----	----
HW 5 - A	24 A	SK 1 - G 1	T 13	D (25) P 4	BN
HW 5 - B	24 C	SK 1 - G 2	T 14	D (25) P 17	VT
HW 5 - E	----	----	T 15	----	----
HW 6 - A	26 A	SK 1 - H 1	T 10	D (25) P 3	WE
HW 6 - B	26 C	SK 1 - H 2	T 11	D (25) P 16	BK
HW 6 - E	----	----	T 12	----	----
HW 7 - A	28 A	SK 1- I 1	T 7	D (25) P 2	GN
HW 7 - B	28 C	SK 1- I 2	T 8	D (25) P 15	YW
HW 7 - E	----	----	T 9	----	----
HW 8 - A	30 A	SK 1- J 1	T 4	D (25) P 1	RD
HW 8 - B	30 C	SK 1- J 2	T 5	D (25) P 14	BE
HW 8 - E	----	----	T 6	----	----

OPERATION

The GUARDIAN AUTOGRAPH Terminal is normally started by rebooting the PC or typing *GUARDIAN* followed by the 'Enter' key.
The system displays a MAIN MENU where menu selections requires the use of keyboard function keys as described previously.(see page 7)
The system is operated by using function buttons F1 to F10 to select one of a number of MAIN MENU choices on the Autograph screen.. The resultant screen display allows further function button F1 to F10 selections from Sub.Menus displayed at the bottom.

In order to simplify user operation and to provide security for the system configuration settings, the PASSWORD entered by a person determines the MAIN MENU and SUB MENU choices displayed and the system functions available for use by the operator

MAIN MENU functions available are therefore dependent on the particular level of password entry last selected as below

Monitor Only   With **No Password** entered then the system provides monitor
                          only OPERATION facilities and only allows
                          Main Menu F1, F3, F5, F9 functions
                          All others are not displayed or available

Monitor & Alarm Accept   Store Managers **'USER'** Password allows system monitoring
                          and ALARM ACCEPT and allows
                          Main Menu F1, F3, F5, F8, F9 functions
                          All others are not displayed or available

Controller & System Setup Refrigeration '**Contractors'** Password
                          allows SETUP but omits certain F10 configuration functions
                          For further details see page 31

System Configuration   Refrigeration **'Supervisors'** Password
                          allows all OPERATION, SETUP & CONFIGURATION facilities
                          For further details see page 63

This section describes the OPERATION facilities available with NO password or the store 's USER password selected

MAIN MENU

With **No Password** entered then the system provides Monitor Only OPERATION facilities and only allows Main Menu F1, F3, F5, F9 functions

Menu selections available by pressing Function keys F1-F10 on the PC keyboard are shown below.

Descriptions of each of the menu functions is given in the remainder of this section

```
=[Microm Electronics - Guardian AutoGraph Terminal v5.1b]=

                    08:04:08 Fri Apr 25 1997

                    [MAIN MENU V5.1b (Monitor)]
            F1  -   Display Store Temperatures

            F3  -   Display Graphs & Gas Levels

            F5  -   Display Compressors

            F9  -   Enter Password




         Press a function key F1-F10 to select option...

         PRESS <- TO MUTE AUDIBLE ALARM...
```

Entry of the Store Manager's '**USER**' Password allows system monitoring as above plus ALARM ACCEPT operation and allows Main Menu F1, F3, F5, F8, F9 functions

```
=[Microm Electronics - Guardian AutoGraph Terminal v5.1b]=                   A

                    17:58:43 Thu May 08 1997

                    [MAIN MENU V5.1b (User password)]
            F1  -   Display Store Temperatures
            F2  -   Display Stub Details
            F3  -   Display Graphs & Gas Levels
            F4  -   Display Defrost Times
            F5  -   Display Compressors

            F8  -   Display Alarms List & Accept Alarm
            F9  -   Enter Password



         Press a function key F1-F10 to select option...




 1758   08/05/97 249/0                                               Comms
```

Notes on MAIN MENU Display
TIME & DATE
Time is displayed as HRS:MINS:SECS

Time and date may be corrected only after **Contractors** password entry
LAST ALARM
The last unaccepted alarm with its time and date is displayed on a red background on the bottom line of the MAIN MENU.

The alarm may be accepted with the USER password entered by selecting
                MAIN MENU F8 - Display Alarms List & Accept Alarm

USEFUL BUTTON SEQUENCES

The following frequently used button sequences may be of help to the unfamiliar

Get back to MAIN MENU

press *Esc* Escape key or Function key *F10* repeatedly until MAIN MENU is displayed

Check a case discharge air temperature

press *Esc* Escape key or Function key *F10* repeatedly until MAIN MENU is displayed
press *F1* Display Temperatures
press *PgDn* page down key until the required case name is displayed
 look at appropriate temperature T1 (case 1) to T4(case 4)
see page 21

Check a coldstore return air temperature

press *Esc* Escape key or Function key *F10* repeatedly until MAIN MENU is displayed
press *F1* Display Temperatures
press *PgDn* page down key until the required coldstore name is displayed
 look at return air temperature T1
see page 21

Accept an Alarm

press *Esc* Escape key or Function key *F10* repeatedly until MAIN MENU is displayed
press *F9* and type *user password* for the system then press *enter* (page 30   )
press *F8* Display Alarm List & Accept Alarm
see page 29

Display and Print a Graph

press *Esc* Escape key or Function key *F10* repeatedly until MAIN MENU is displayed
press *F3* Display graph
press *PgDn* page down key until the required graph name is displayed
press *down arrow* key until the cursor line is on the required graph
press *F2* Display Graph
type in *day number*(1 to 31) followed by *enter*
     or just press *enter* if today's graph is required
The graph is now on display for the selected day
press *F6* to print a copy of the graph (provided the system has a printer)
see page 22 24

Display details of a compressor

press *Esc* Escape key or Function key *F10* repeatedly until MAIN MENU is displayed
press *F5* Display Compressors
press *down arrow* key until the cursor line is on the required compressor overview
press *F2* Display Detail shows latest values and states for the selected compressor
see page 27

MAIN MENU FUNCTIONS (USER)

With NO or USER password entered, the display format for each MAIN MENU function key with appropriate sub-menu functions and window-menus is as follows.

Display Store Temperatures F1

Main Menu F1 displays the first of 15 pages of store overviews each displaying case or cooler discharge temperatures and alarm status. The displays may also be used with the cursor line to select a graph for a particular refrigeration system.

```
═══════════[Microm Electronics - Guardian AutoGraph Terminal v5.0d]═══════════A
      STH MELBOURNE          Store Temperatures        21:56:52 Fri Apr 25 1997
Stub _____name_____Status_____Case_1_____Case_2_____Case_3_____Case_4_____
 1   *** SYSTEM A ***
 2   A1 17DR GDFZ        DEFROST    -17.5          -17.0        -16.5        -16.0
 3   A2 9DR GDFZ            OFF     -18.0          s/c Fail
 4   A3 3DR GDFZ BAKE    *ALARM     -10.5 High
 5
 6
 7   *** SYSTEM B ***
 8   B1 15DR GDFZ          Fail     -15.5          -16.5        o/c Fail
 9   B2 3DR GDFZ                    -16.5
10   B3 F/F C/R                     -16.0
11
12
13
14
15
16

                         F3                                  F9          F10
                         Graph                             Next Page    Done
```

STANDARD KEYS

cursor down arrow	highlights next system line
cursor up arrow	highlights previous system line
PgUp	displays next page in sequence
PgDn	displays previous page in sequence
Esc	displays MAIN MENU

STATUS   **VALUES**

any system in alarm has status   **ALARM**   Discharge temperature are displayed for each unit in the system.

any system in defrost has   **DEFROST** .   Temperatures (-40 to +40C) are displayed to the nearest 0.5C

any system selected OFF has   **OFF** .   Values are displayed as   **' oc'** for open circuit probes.

any system selected FANS ONLY has   **FANS** .   **' sc'** for short circuit probes.

any coldstore with a door open displays   **open.**   **' nF'** for not fitted circuit probes.

    ' ? ' for communication errors.

Sub menus available for function key selection with Store Temperatures on display are:.

Display Graph

> **F3** , when pressed , displays the graph overview for the first graph found which has the highlighted controller address. Similar to selecting MAIN MENU F3 (page22)

Alarm List

> **F8** displays the latest page of alarms in the Alarm List and 'accepts' all outstanding alarms the same as MAIN MENU F8 if ***USER*** password.(page.29

Next Page

> **F9** when pressed**,** displays the next page of store temperatures in sequence for systems 1-16, 17-32, 33-48, 49-64, 65-80 etc to ..255

Done

> **F10** when pressed, returns to Main Menu display.

Display Stub Details F2

Main Menu F2 provides direct access to the detail display for a particular refrigeration unit if the unit stub number is known and prompts:-

```
Enter stub number (1-80) for display :-
```

Typing the required stub number (eg 33) followed by enter then displays the selected unit detail which includes defrost type, control setpoints, defrost times, delays and latest values of all temperatures.

Alternatively, the Stub Detail display may be accessed by highlighting a particular stub on the Store Temperature display and selecting sub-menu F2 Detail as on previous page.

This display may be used to change setpoints for a particular refrigeration stub after using sub-menu F7 Settings.

```
=======[Microm Electronics - Guardian AutoGraph Terminal v5.0d]=======
     STH MELBOURNE            STUB DETAILS              14:37:52 Fri Mar 07 1997
Stub _____name_____Status_____Case_1_____Case_2_____Case_3_____Case_4____
 2  A1 17DR GDFZ                  -16.5
========================================DEFROST TIMES=========================
                      Type Status   _T1___T2___T3___T4___T5___T6__Per(m)
    2  A1 17DR GDFZ   Stor          0001 1201 0000 0000 0000 0000    40
============================================SETTINGS=========================
       Control Prod         ┌─────── Defrost ───────┐  ┌─delays─┐
Stub   cutin  ratio Rly3 Type  no/day  start  Term dif per Liq Fan  Alarm
       _c_____PR%__              _dn__hrs_min__d__dd__dP__Lt__Ft__Gt__Ad___
    2    -17    99   HTR  Stor      2    00  01   20   2  40   1   1  90    7
=========================================TEMPERATURES========================
Stub    n/f   Avg.   T1    T2    T3    T4    T5   off_sw    n/f┌──── Status ────┐
Case __c_____d_____r_____i_____o_____off__S/H__SH-SP__U%_ Input Output Alarm
   2/1  -22.5 -22.5 -16.5 -27.0 -23.5   o/c  3.5   0.0  59.0 ....  C..F


  F1                                                     F9         F10
Find Stub                                            Next Page     Done
```

STANDARD KEYS

up/down arrows- no action

PgUp   displays next stub page in sequence

PgDn   displays previous stub page in sequence

Esc   returns to menu from which display was selected.

STATUS & TEMPERATURE VALUES

are as defined for Store Temperature display.

Display Graphs F3

Main Menu F3 displays the first of fifteen pages of Graph selection overviews which contains the latest values or states of the points being recorded for graphing. Each graph may contain up to 4 points which can be measured values of pressure, temperature, percent load or capacity, differential pressures, motor hoursrun, superheat or digital ON/OFF states.

```
==========[Microm Electronics - Guardian AutoGraph Terminal]==========P
 SHANGHAI                       GRAPHS                  07:25:36 Wed Mar 22 1995
Graph _____Name_____ Status ____T-1_____T-2_____T-3_____T-4____
   1 *** SET-1 ** Suction            0.1
   2 Pressures    Low S-1            0.1        1.0        1.1        1.1
   3 Temperatures Low S-1           12.0       19.0       12.0       23.0
   4 Capacity %   Low S-1           10.0
   5 Pressures    High S-1           1.5        1.4        1.5        1.5
   6 Temperature  High S-1          13.0       17.0       13.0       23.0
   7 Capacity %   High S-1          11.0
   8 Motor Load %    SET-1           0.0
   9 Gearbox Press. SET-1           0.1
  10 Winding Temps  SET-1          51.0       53.0       53.0
  11 Bearing Temps. SET-1          35.0       38.0
  12
  13 Graph Number 13
  14 Graph Number 14
  15 Graph Number 15
  16 Graph Number 16



            F2            F3                            F9       F10
        ViewGraph     ViewData                       NextPage    Done
```

STANDARD KEYS

cursor down arrow	highlights next graph line
cursor up arrow	highlights previous graph line
PgUp	displays next page in sequence
PgDn	displays previous page in sequence
Esc	displays MAIN MENU

STATUS

- any system in alarm has   * ALARM status .
       alarms can be High or Low for values or
         Fail for digital states.

VALUES

Temperatures (-40 to +40C) are displayed to the nearest 0.5C
Temperatures (0 to +125C) are displayed to the nearest 1.0C

Values are displayed as	' oc' for open circuit probes.
'	sc' for short circuit probes.
'	nF' for not fitted circuit probes.
'	? ' for communication errors.

View Graph+

F2 prompts

```
+------------------------------------------------------+
¦  Enter day number (1-31) to display -> 24       ¦
+------------------------------------------------------
```

and displays graphical data for highlighted graph for selected day.
Typical graphs displays are of the form:-


```
T.Hemel Hempstead                          Time: 12:00
Stub 1 Case 2 for Thu Apr 24 1997    4/2   discharge air: -28.0
                                     4/3     return air: -13.5
                                     4/4     coil-in  : -26.0
   deg C                             4/5     coil-out : -18.5
```

```
      F1     F2     F3      TIME/DAY        F6   F7 Next F8 Last F9 Next F10
     Day  ZoomOut ZoomIn                  Print  Graph  Day/Mth Day/Mth Done
```
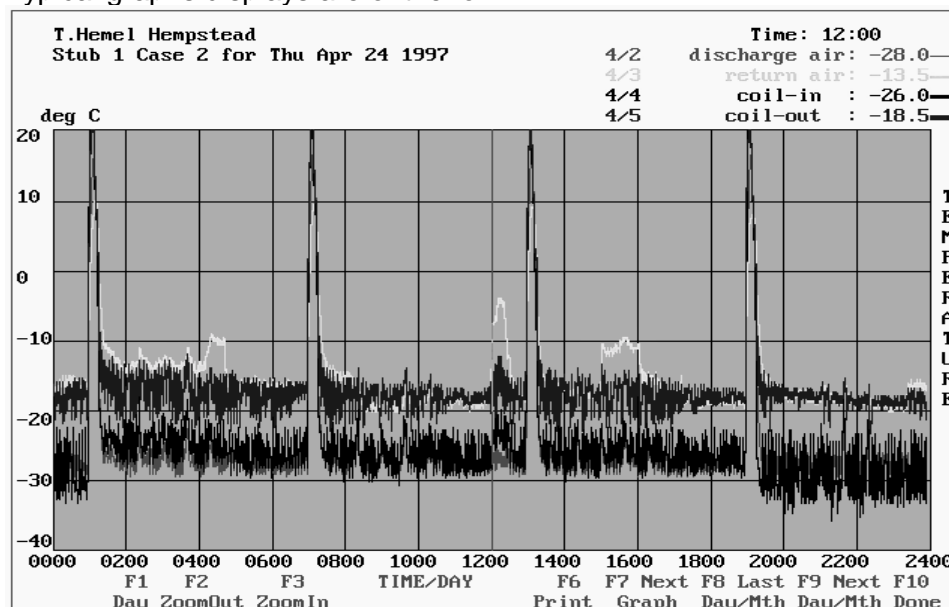
Graph data displays:-

Graphs contain   data at 1-minute intervals for up to 4 trends/graph/day
Time axis is 0000 0200 0400 etc to 2400 each month day 1-31.
At begining of new month day previous months day is cleared.
Y-axis units and scaling is variable from F6 Graph Scaling.
3-hourly average is stored for this/last month graph
16-char zone names or defaults to supermarket standard zone
Graphed values may be read off against time by moving the cursor line using pg-up,pg-dn, right arrow ,left arrow.
Value ,time and point identification are displayed in the top right hand corner of the display.
A Zoom facility is available using F2 ,F3 referenced to the position of the cursor line.

Sub menus available for function key selection with Store Temperatures on display are:.

ZoomIn	To increase X-axis	**press F2**
ZoomOut	To decrease X-axis	**press F3**
Print	To Print A4 size hard copy of graph on display	**press F6**
Next Graph	To display next graph in sequence for same day	**press F7**
Last Day/Mth	To display previous day for same graph	**press F8**

Day 0 displays 3-hour averages for this month
Day1 displays 3-hour averages for last month

Next Day/Mth To display next day for same graph   **press F9**

Done   To return to GRAPH Temperatures to select another graph.**press F10**

View Data

With Graph Overview on display tabular data for a particular highlighted graph line for selected day.(say day 13) ,may be displayed as below by pressing sub.menu function button *F3* which prompts

Enter day number (0-31) for display :- 25 (enter)

```
╔═══════════════[Microm Electronics - Guardian AutoGraph Terminal]═══════════════╗
║ T.Hemel Hempstead          GRAPH DATA DISPLAY        14:16:41 Fri Apr 25 1997║
║Graph:    Stub 1 Case 2          on Date:        Thu Apr 24 1997              ║
║   Time    discharge air      return air        coil-in          coil-out     ║
║  00:16    -27.5             -15.5            -31.0             -17.0          ║
║  00:17    -29.0             -16.0            -32.0             -21.5          ║
║  00:18    -29.0             -16.5            -29.5             -20.5          ║
║  00:19    -26.5             -16.0            -24.0             -18.0          ║
║  00:20    -25.5             -15.0            -24.5             -17.0          ║
║  00:21    -28.5             -16.0            -33.0             -19.5          ║
║  00:22    -29.5             -16.5            -31.0             -20.0          ║
║  00:23    -28.5             -16.5            -28.0             -19.0          ║
║  00:24    -25.5             -15.5            -22.5             -17.0          ║
║  00:25    -26.5             -15.0            -31.0             -16.0          ║
║  00:26    -27.5             -15.5            -31.5             -16.5          ║
║  00:27    -28.5             -16.0            -28.0             -18.0          ║
║  00:28    -27.0             -15.5            -24.5             -17.5          ║
║  00:29    -25.5             -15.0            -25.0             -16.5          ║
║  00:30    -28.0             -15.5            -32.5             -18.5          ║
║  00:31    -29.5             -16.5            -32.5             -21.0          ║
║                                                                             ║
║                                                                             ║
║                                         F8          F9          F10         ║
║                                      Last Page   Next Page     Done         ║
╚═════════════════════════════════════════════════════════════════════════════╝
```

{

Last Page to display previous data for same graph   **press F8**

Next Page to display next data for same graph   **press F9**

Done to return to GRAPH Temperatures to select another graph.   **press F10**

Display Defrost Times F4

Main Menu F4 displays the first of five pages of stub defrost times. Each system/stub may be programmed to have up to 6 defrost times per day. The system/stub name, defrost period, defrost type and control status are displayed with 16 stubs/page as below. The displays may also be used with the cursor line to select a particular refrigeration stub for changing set points and defrost times after selecting F7 Settings with the correct password .

```
════════════[Microm Electronics - Guardian AutoGraph Terminal]════════════A
 T.Hemel Hempstead           DEFROST TIMES            14:54:18 Mon Apr 28 1997

Stub _____name_____    Type Status    _T1___T2___T3___T4___T5___T6_Per(m)
   1  18ft f/f GEL/GJL HG-T           0001  0601 1201 1801 0000 0000    20
   2  28ft f/f GJL     HG-T           0040  0640 1240 1840 0000 0000    20
   3  24ft f/f GJL     HG-T           0120  0720 1320 1920 0000 0000    20
   4  24ft f/f T43     HG-C           0200  0800 1400 2000 0000 0000    17
   5  20ft f/f T43     HG-C DEFROST   0240  0840 1440 2040 0000 0000    17
   6  24ft f/f T43     HG-C           0320  0920 1520 2120 0000 0000    17
   7  20ft f/f T43     HG-C           0400  1000 1600 2200 0000 0000    17
   8  2.4m back deli   Stor           0440  1040 1640 2240 0000 0000    20
   9  50% f/f freezer  Stor           0140  0540 0940 1340 1740 2140    20
  10  Spare            HG-T           0000  0600 1200 1800 0000 0000    20
  11  Spare            HG-T           0030  0630 1230 1830 0000 0000    20
  12  36ft f/f GJL     HG-T           0001  0601 1201 1801 0000 0000    20
  13  36ft f/f GJL     HG-T           0040  0640 1240 1840 0000 0000    20
  14  18ft f/f T43     HG-C           0120  0720 1320 1920 0000 0000    17
  15  12ft f/f T43     HG-C           0200  0800 1400 2000 0000 0000    17
  16  18ft f/f T43     HG-C DEFROST   0240  0840 1440 2040 0000 0000    17


  F1              F3                       F7              F9          F10
Find Stub    Print All                  Settings      Next Page      Done
```

STANDARD KEYS
up/down arrows   highlights selected stub line for settings change
PgUp   displays next stub defrost times page in sequence
PgDn   displays previous defrost times page in sequence
Esc   returns to MAIN MENU.

STATUS
are as defined for Store Temperature display.- any stub in defrost has DEFROST status .

DEFROST TYPES   defrost types can be
> **O-C**   Off-cycle defrost
> **HG-C**   Hotgas cycling around a set discharge temperature
> **HG-T**   Hotgas terminating on a specific discharge temperature
> **Stor**   Coldstore terminating on a specific coil temp. with Fans off during defrost.
> **HGT8**   Hotgas terminating on a specific coil temperature

DEFROST TIMES & PERIOD
are as defined later in MAIN MENU F7 Change Stub Settings on page .56

Display Compressors F5

Main Menu F5 displays the Compressor Overview page which contains the control setpoint, suction and discharge pressures and capacity for each compressor. This display may also be used with the cursor line to select a detail display,(F2), for a particular compressor.

The system caters for a maximum of 15 compressors which may be any SCC or RCC models. The system may provide display formats for many compressor configurations.

```
==============[Microm Electronics - Guardian AutoGraph Terminal]==============P
 SHANGHAI                  Compressor Overview          07:27:18 Wed Mar 22 1995
Unit____name_____..status.__SUCTION_____SETPOINT____DISCHARGE___CAPACITY____
  1 SET-1 Low-stage     OFF       0.1        -0.2          1.0        10.0
  2 SET-1 High-stage    TRIP      1.5         2.1          1.4        11.0
  3 SET-2 Low-stage     OFF       0.2        -0.2          2.3        82.0
  4 SET-2 High-stage    TRIP      2.6         2.1          6.5        94.0
  5 SET-3 Low-stage     OFF       0.1        -0.2          0.5         9.0
  6 SET-3 High-stage              1.6         2.1          1.7        13.0
  7 SET-4 Low-stage              -?-        -0.2         -?-         -?-
  8 SET-4 High-stage             -?-         2.1         -?-         -?-
  9 MOTOR TEMPS.        TRIP      n/f         0.0          n/f        38.0
10




            F2                                            F8          F10
         Detail                                       Alarm List     Done
```
}

Compressor Overview displays

STANDARD KEYS

up/down arrows   highlights selected Compressor line for settings change, etc.

Esc   returns to MAIN MENU.

STATUS

- any Compressor in alarm has   Hi/Low! status.
- any Compressor tripped has   Trip status.
- any Compressor selected OFF mode has   OFF status.
- any Compressor selected Manual mode has   MAN status.
- any Compressor on Delay after stop, time between
             restart or Low oil separator temp. has   WAIT status .

VALUES

Suction pressure, control setpoint, discharge pressure and capcity are displayed for each compressor.

Pressures (-1 to +25 Bar) are displayed to the nearest O.1 bar guage.

Values are displayed as:-

         ' oc' for open circuit transducer.

         ' sc' for short circuit transducer.

         ' nF' for not fitted transducer.

         ' ? ' for communication errors.

The Sub Menu functions available from the Compressor Overview display are as follows

Detail

F2 *when pressed,* displays the latest values of pressure, temperature, etc and the state of the digital inputs and outputs for the highlighted compressor.

```
═════════════[Microm Electronics - Guardian AutoGraph Terminal]═══════════════A
 SHANGHAI                        Compressor Detail           07:27:30 Wed Mar 22 1995
Unit____name_____..status._SUCTION_____SETPOINT_____DISCHARGE___CAPACITY___
 1 SET-1 Low-stage        OFF       0.1          -0.2          1.0         10.0

                         mode      Motor Load % Motor AMPS  1000HoursRun
     LOW_STAGE UNIT       OFF          0.0         0.0          32.0
                        SUCTION     DISCHARGE      OIL         FILTER
     PRESSURES bar g      0.1          1.0         1.1          1.1
                        SUCTION     DISCHARGE   OIL inject   OIL heater
     TEMPERATURE 'C       13.0        19.0        12.0         23.0
                        SUCTION     DISCHARGE              Gearbox Pres
     Equivalent Temps    -32.0       -19.0                    0.1
                        SUCTION 'C  DISCHARGE      OIL         FILTER
     Differentials        45.0         0.9         0.1          0.0
                        oil pump      motor      Economiser   Injection
     OUTPUTS RELAYS       off          off         off          off
                        Pump run    Motor run   Slide_at_Min Slide_at_max
     INPUTS SIGNALS       stop         stop        on           off
                        L.T. trip   H.T. trip   Oil Level    Oil Flow
     SAFETY TRIPS

                                                   F8          F9       F10
                                                 Setup      NextComp  Done
```

This display may vary depending on the compressor model being used,(ie SCC40, SCC35, CPC, etc.), as the input/output configurations vary. The software package has standard display configurations for each model. which can only be setup with the configuration password.

NextComp.   To display the next page of compressor details in sequence for compressors 1-15.
(e.g. displays compressor 6 if on compressor 5).   ***press F9***

Done   To return to display Compressor Overview.   ***press F10***

Alarm List

F8 displays the latest page of alarms in the Alarm List and 'accepts' all outstanding alarms the same as MAIN MENU F8 if **USER** password.(page.29

Done

F10 when pressed, returns to Main Menu display.

Display Alarm List & Accept Alarm F8

Main Menu F8 is used to Accept an Alarm
Pressing F8 also displays the first of 12 pages of the Alarm List. The last 200 alarms
which have occurred are displayed in reverse chronological order with each line giving
the alarm description and time and date of alarm. All unaccepted alarms are 'Accepted'
when F8 is pressed and the event is stored in the Alarm List with time and date of
acceptance plus password level in use at the time(User, Contractor, Supervisor).

```
========[Microm Electronics - Guardian AutoGraph Terminal v5.0b]========P
       BATEAU BAY                ALARM HISTORY          21:08:39 Mon Apr 28 1997
 _Time____Date___Address_____Zone_____Point_____Value___State__
  0105  10/04/97                                 User Password           ACCEPTED
  0104  10/04/97                                                         MUTED
  0035  10/04/97    3/5   A1 28DR FREEZER      -MODULE 5          -9.0   High
  0028  10/04/97    6/1   SYS A2/G1.2.3        -F/FOOD A2 MOD 7   -3.0   High
  0024  10/04/97    3/6   A1 28DR FREEZER      -MODULE 6          -6.0   High
  0021  10/04/97   12/6   SYSB2/D5/E2.3/A3     -F/BAK' A3 MOD 52   1.5   High
  0014  10/04/97    3/4   A1 28DR FREEZER      -MODULE 4          -7.0   High
  0011  10/04/97                               Contractors Password      ACCEPTED
  0006  10/04/97    3/1   A1 28DR FREEZER      -MODULE 1           5.0   High
  0001  10/04/97    3/3   A1 28DR FREEZER      -MODULE 3           8.0   High
  2356  09/04/97  153/C   SYSTEM B 1-LT        -Oil Pressure      trip   Fail
  2355  09/04/97    3/2   A1 28DR FREEZER      -MODULE 2           4.5   High
  2347  09/04/97  153/C   SYSTEM B 1-LT        -Oil Pressure      trip   Fail
  2344  09/04/97  153/C   SYSTEM B 1-LT        -Oil Pressure      trip   Fail
  2341  09/04/97                               Contractors Password      ACCEPTED
  2340  09/04/97  153/C   SYSTEM B 1-LT        -Oil Pressure      trip   Fail


              F3       F4              F7        F8         F9        F10
            Graph   Print All        Setup   Last Page  Next Page   Done
```

Alarm List Display
Alarms are stored in reverse chronological order with time and date
Alarm messages contain the name of the controller and the name of the point value or trip
input .The third column is the system reference for the alarm which defines the controller
address and the point within the controller that has detected the alarm.
Alarm messages give point value and reason for alarm ie HIGH, LOW TRIP etc.
When alarms are accepted the password category currently being used is displayed
        ie USER, Contractor or Supervisor
IF an Alarm MUTE facility is available on an AUTOGRAPH Terminal, an alarm unit or
Reception Alarm Repeater, then the time of MUTE being pressed is also recorded

Sub menus available for function key selection with Store Temperatures on display are:.

Display Graph

> **F3** , when pressed with a particular alarm entry highlighted by the cursor, displays the
> graph overview for the first graph found which has the controller address of the
> highlighted alarm. Similar to selecting MAIN MENU F3 (page22)

Print All

> **F4** *prints a hard copy of all the alarms* in the Alarm List on the system printer

Last Page
> **F8** when pressed, displays the previous page of alarms in the alarm list

Next Page
> **F9** when pressed, displays the next page of the alarm list in sequence
> a message **END OF LIST** is displayed after the last alarm stored.
> Pressing F9 again displays the first page of the alarms

Done

  F10 when pressed*,* returns to Main Menu display.

Enter Password F9

Main Menu F9. Certain menu functions are only displayed if the correct password has been entered previously, while others request password entry before proceeding further.
F9 prompts:-

```
Enter Password ->
```

type in password level required 'xxxxxxxx' followed by 'enter'. A correct entry prompts

```
*** Password Accepted ***
```

an incorrect entry prompts

```
*** Password Not Accepted ***
```

Password entry is automatically removed after 90 minutes but may also be removed by selecting F9 and pressing Enter.

The password setting on leaving the factory is *user*
The password may be changed only when the contractors or supervisors password has been entered previously.

SETUP OPERATION

MAIN MENU(Contractor)

With **Contractor Password** entered then the system provides Monitor, Alarm Accept, Control and Setpoint settings change facilities,
Contractor password allows all Main Menu functions F1 to F10
MAIN MENU selections available by pressing Function keys F1-F10 on the PC keyboard are as shown below.
Descriptions of each of the menu functions is given in the remainder of this section

```
┌──────────[Microm Electronics - Guardian AutoGraph Terminal v5.1b]──────────┐
│                                                                            │
│                  ┌───────────────────────────┐                             │
│                  │ 09:58:01 Fri Apr 25 1997  │                             │
│                  └───────────────────────────┘                             │
│                                                                            │
│              [MAIN MENU V5.1b <Contractor password>]                       │
│            F1  -     Display Store Temperatures                            │
│            F2  -     Display Stub Details                                  │
│            F3  -     Display Graphs & Gas Levels                           │
│            F4  -     Display Defrost Times                                 │
│            F5  -     Display Compressors                                   │
│            F6  -     Change Zone Settings                                  │
│            F7  -     Change Stub Settings                                  │
│            F8  -     Display Alarms List & Accept Alarm                    │
│            F9  -     Enter Password                                        │
│            F10 -     System Configuration                                  │
│                                                                            │
│                                                                            │
│            Press a function key F1-F10 to select option...                 │
│                                                                            │
│                                                                            │
└────────────────────────────────────────────────────────────────────────────┘
```

Notes on MAIN MENU Display

TIME & DATE
Time is displayed as HRS:MINS:SECS
Time and date may be corrected only after **Contractors** password entry
LAST ALARM
The last unaccepted alarm with its time and date is displayed on a red background on the bottom line of the MAIN MENU.
The alarm may be accepted with the USER password entered by selecting
MAIN MENU F8 -   Display Alarms List & Accept Alarm
HIGHWAY STATUS
The RS485 highway status is shown by a flashing A or P in the top right corner of the menu display where :-
A (yellow) = highway ACTIVE - last unit responded correctly
A (purple) = highway ACTIVE - last unit failed to respond
P (yellow) = highway PASSIVE - waiting between scans.
SOFTWARE VERSION
The top line displays the software version of the Autograph Software eg   **V5.1b**
TEXTFILE VERSION
The title MAIN MENU is followed by   the version of TEXTFILES used by the Autograph Software. This is normally the same as the Autograph Software version eg   **V5.1b**

USEFUL BUTTON SEQUENCES

The following frequently used button sequences may be of help to the unfamiliar

Display & Graphs

Get back to MAIN MENU

press *Esc* Escape key or Function key *F10* repeatedly until MAIN MENU is displayed

Check a case discharge air temperature

press *Esc* Escape key or Function key *F10* repeatedly until MAIN MENU is displayed
press *F1* Display Temperatures
press *PgDn* page down key until the required case name is displayed
 look at appropriate temperature T1 (case 1) to T4(case 4)
see page 37

Check a coldstore return air temperature

press *Esc* Escape key or Function key *F10* repeatedly until MAIN MENU is displayed
press *F1* Display Temperatures
press *PgDn* page down key until the required coldstore name is displayed
 look at return air temperature T1
see page 37

Accept an Alarm

press *Esc* Escape key or Function key *F10* repeatedly until MAIN MENU is displayed
press *F9* and type *user password* for the system then press *enter*
press *F8* Display Alarm List & Accept Alarm
see page 29, 59,

Display and Print a Graph

press *Esc* Escape key or Function key *F10* repeatedly until MAIN MENU is displayed
press *F3* Display graph
press *PgDn* page down key until the required graph name is displayed
press *down arrow* key until the cursor line is on the required graph
press *F2* Display Graph
type in *day number*(1 to 31) followed by *enter*
     or just press *enter* if today's graph is required
The graph is now on display for the selected day
press *F6* to print a copy of the graph (provided the system has a printer)
see page 22, 24

Display details of a compressor

press *Esc* Escape key or Function key *F10* repeatedly until MAIN MENU is displayed
press *F5* Display Compressors
press *down arrow* key until the cursor line is on the required compressor overview
press *F2* Display Detail shows latest values and states for the selected compressor
see page 45, 46

Cases & Evaporators

force a defrost on a case or cooler

press **Esc** Escape key or Function key **F10** repeatedly until MAIN MENU is displayed
If contractors password level is not active then press **F9 Enter Password** and enter contractors password
press **F1 Display Temperatures**
press **PgDn** page down key until the required cooler/coldstore name is displayed
press cursor control keys unit name is highlighted.
press **F2 Stub Details**
press **F3 Defrost.**
see page 373940

force a case into FANS ONLY mode

press **Esc** Escape key or Function key **F10** repeatedly until MAIN MENU is displayed
If contractors password level is not active then press **F9 Enter Password** and enter contractors password
press **F1 Display Temperatures**
press **PgDn** page down key until the required cooler/coldstore name is displayed
press cursor control keys unit name is highlighted.
press **F2 Stub Details**
press **F4 Fans.**
see page 40

force a case/cooler controller into OFF mode

press **Esc** Escape key or Function key **F10** repeatedly until MAIN MENU is displayed
If contractors password level is not active then press **F9 Enter Password** and enter contractors password
press **F1 Display Temperatures**
press **PgDn** page down key until the required cooler/coldstore name is displayed
press cursor control keys unit name is highlighted.
press **F2 Stub Details**
press **F5 OFF.**
see page 40

force a case/cooler controller into Auto mode

press **Esc** Escape key or Function key **F10** repeatedly until MAIN MENU is displayed
If contractors password level is not active then press **F9 Enter Password** and enter contractors password
press **F1 Display Temperatures**
press **PgDn** page down key until the required cooler/coldstore name is displayed
press cursor control keys unit name is highlighted.
press **F2 Stub Details**
press **F6 AUTO.**
see page 40

change control settings on a case/coldstore

press *Esc* Escape key or Function key *F10* repeatedly until MAIN MENU is displayed

If contractors password level is not active then press *F9 Enter Password* and enter contractors password

press *F1 Display Temperatures*

press *PgDn* page down key until the required cooler/coldstore name is displayed

press cursor control keys unit name is highlighted.

press *F2 Stub Details*

press *F7 Settings*

press *F2 Transfer*

press *F3 read from case 1*

the control setpoint for the unit will be highlighted

use the numeric keys 0 to 9 to give the required value. If the temperature is less than zero the minus key must be pressed first*.*

If the parameter is text based then repeatedly pressing the space bar will cycle through all available selections.

Use the cursor control keys to highlight the next parameter

when finished making changes press *F2 Transfer*

press *F1 send to all cases*,(that is all cases on this stub)

see page 56, 57

change defrost settings for a case/coldstore

press *Esc* Escape key or Function key *F10* repeatedly until MAIN MENU is displayed

If contractors password level is not active then press *F9 Enter Password* and enter contractors password

press *F1 Display Temperatures*

press *PgDn* page down key until the required cooler/coldstore name is displayed

press cursor control keys unit name is highlighted.

press *F2 Stub Details*

press *F7 Settings*

press *F2 Transfer*

press *F3 read from case 1*

the control setpoint for the unit will be highlighted

Use the cursor control keys to highlight the defrost parameter to be changed

use the numeric keys 0 to 9 to give the required value.If the temperature is less than zero the minus key must be pressed first*.*

If the parameter is text based then repeatedly pressing the space bar will cycle through all available selections.

Use the cursor control keys to highlight the next parameter

when finished making changes press *F2 Transfer*

press *F1 send to all cases*,(that is all cases on this stub)

see page 56, 57

Compressors

reset a compressor trip

press **Esc** Escape key or Function key **F10** repeatedly until MAIN MENU is displayed
If contractors password level is not active then press **F9 Enter Password** and enter contractors password
press **F5 Display Compressors**
press cursor control keys compressort name is highlighted.
press **F2 Compr Details**
press **F2 Reset**
see page 45, 46, 46,

force a compressor controller into Remote/Local/OFF mode

press **Esc** Escape key or Function key **F10** repeatedly until MAIN MENU is displayed
If contractors password level is not active then press **F9 Enter Password** and enter contractors password
press **F5 Display Compressors**
press cursor control keys compressor name is highlighted.
press **F2 Compr Details**
press **F2 Reset**
press **F3 Remote**
press **F4 Local**
press **F5 OFFt**
see page 45 to 47

change compressor control setoints

press **Esc** Escape key or Function key **F10** repeatedly until MAIN MENU is displayed
If contractors password level is not active then press **F9 Enter Password** and enter contractors password
press **F5 Display Compressors**
press cursor control keys unit name is highlighted.
press **F4 Setpoints**
press **F2 Transfer**
press **F3 read from compressor**
the control setpoint for the unit will be highlighted
Use the cursor control keys to highlight the parameter to be changed
press **F6 Settings**
use the numeric keys 0 to 9 to give the required value.If the value is less than zero the minus key must be pressed first**.**
Press **enter**
Use the cursor control keys to highlight the next parameter to be changed
when finished making changes press **F2 Transfer**
press **F1 send to compressor**
see page45, 49, 50

change alarm settings on a compressor

press **Esc** Escape key or Function key **F10** repeatedly until MAIN MENU is displayed

If contractors password level is not active then press **F9 Enter Password** and enter contractors password

press **F5 Display Compressors**

press cursor control keys unit name is highlighted.

press **F6 Limits**

press **F2 Transfer**

press **F3 read from compressor**

if limit required is not displayed then press **F9 NextPage**

press cursor control keys until limit is highlighted.

Use the cursor control keys to highlight the parameter to be changed

press **F6 Set Limit**

Use the cursor control keys to highlight the value to be changed

use the numeric keys 0 to 9 to give the required value.If the value is less than zero the minus key must be pressed first*.*

Press **enter**

Use the cursor control keys to highlight the next parameter to be changed

when finished making changes press **F2 Transfer**

press **F1 send to compressor**

MAIN MENU FUNCTIONS (Contractor)

With Contractor password entered, the display format for each MAIN MENU function key with appropriate sub-menu functions and window-menus is as follows.

Display Store Temperatures F1

Main Menu F1 displays the first of 15 pages of store overviews each displaying case or cooler discharge temperatures and alarm status. The displays may also be used with the cursor line to select a graph, a detail display or change settings for a particular refrigeration system.

```
═══════════[Microm Electronics - Guardian AutoGraph Terminal v5.0d]═══════════A
·     STH MELBOURNE          Store Temperatures        21:56:25 Fri Apr 25 1997
Stub _____name_____Status_____Case_1_____Case_2_____Case_3_____Case_4____
 1  *** SYSTEM A ***
 2  A1 17DR GDFZ       DEFROST   -17.5        -17.0        -16.5        -16.0
 3  A2 9DR GDFZ            OFF   -18.0      s/c Fail
 4  A3 3DR GDFZ BAKE   *ALARM    -10.5 High
 5
 6
 7  *** SYSTEM B ***
 8  B1 15DR GDFZ          Fail   -15.5        -16.5      o/c Fail
 9  B2 3DR GDFZ                  -16.5
10  B3 F/F C/R                   -16.0
11
12
13
14
15
16

   F1            F2          F3            F7          F8           F9        F10
 Edit      Stub Detail    Graph       Settings    Alarm List   Next Page    Done
```

STANDARD KEYS, STATUS and VALUE descriptions are as previously detailed on page21

Sub menus available for function key selection with Store Temperatures on display are:.

Edit   *See configuration section page .*

Stub Detail

    F2 displays the more information for the highlighted unit as on next page

Display Graph

    F3 , when pressed , displays the graph overview for the first graph found which has the highlighted controller address. Similar to selecting MAIN MENU F3 (page22)

Settings

    F7 allows the highlighted unit control settings to be displayed and modified similar to MAIN MENU function F7 on page . (See password entry on page).

Alarm List

    F8 displays the latest page of alarms in the Alarm List and 'accepts' all outstanding alarms the same as MAIN MENU F8 if *USER* password.(page.29

Next Page

F9   when pressed*,* displays the next page of store temperatures   in sequence

Done   *F10* when pressed*,* returns to Main Menu display.

Display Stub Details F2

Main Menu F2 provides direct access to the detail display for a particular refrigeration unit if the unit stub number is known and prompts:-

```
┌─────────────────────────────────────────────────┐
║ Enter stub number (1-80) for display :-          ║
└─────────────────────────────────────────────────┘
```

Typing the required stub number (eg 33) followed by enter then displays the selected unit detail which includes defrost type, control setpoints, defrost times, delays and latest values of all temperatures.

Alternatively, the Stub Detail display may be accessed by highlighting a particular stub on the Store Temperature display and selecting sub-menu F2 Detail as on previous page.

This display may be used to change setpoints for a particular refrigeration stub after using sub-menu F7 Settings.

```
┌═══════════════[Microm Electronics - Guardian AutoGraph Terminal v5.0d]═══════════════┐
║     STH MELBOURNE            STUB DETAILS              14:37:52 Fri Mar 07 1997║
║Stub _____name_____Status_____Case_1_____Case_2_____Case_3_____Case_4____║
║ 2  A1 17DR GDFZ               -16.5                                            ║
║═══════════════════════════════DEFROST  TIMES═════════════════════════════════║
║                    Type Status   _T1____T2____T3____T4____T5____T6__Per(m)     ║
║  2  A1 17DR GDFZ   Stor         0001  1201  0000  0000  0000  0000     40      ║
║═══════════════════════════════════SETTINGS═══════════════════════════════════║
║      Control Prod        ┌─────── Defrost ───────┐  ┌──delays──┐              ║
║Stub  cutin   ratio Rly3 Type  no/day  start  Term dif per Liq Fan  Alarm      ║
║_____c_____PR%_____dn__hrs_min__d__dd__dP_Lt__Ft__Gt__Ad_____  ║
║ 2    -17     99   HTR  Stor      2   00  01   20   2  40  1   1  90    7       ║
║══════════════════════════════════TEMPERATURES════════════════════════════════║
║Stub   n/f  Avg.   T1    T2    T3    T4    T5   off_sw   n/f┌──── Status ────┐  ║
║Case __c____d_____r_____i_____o_____off__S/H__SH-SP__U%_│Input Output Alarm   ║
║ 2/1  -22.5 -22.5 -16.5 -27.0 -23.5  o/c   3.5   0.0  59.0 ....  C..F          ║
║                                                                               ║
║                                                                               ║
║ F1            F3       F4    F5    F6      F7            F9        F10          ║
║Find Stub    DEFROST   AUTO  FANS  OFF    Settings     Next Page   Done         ║
└───────────────────────────────────────────────────────────────────────────────┘
```

STANDARD KEYS

up/down arrows-   no action

PgUp   displays next stub page in sequence

PgDn   displays previous stub page in sequence

Esc   returns to menu from which display was selected.

STATUS & TEMPERATURE VALUES

are as defined for Store Temperature display.

DEFROST TIMES & SETTINGS

are as defined later in MAIN MENU F7 Change Stub Settings page 56

Find

F1 Find finds and displays the Stub Detail page as above for the stub selected from prompt:-

```
┌─────────────────────────────────────────────────┐
║ Enter stub number (1-80) for display :-          ║
└─────────────────────────────────────────────────┘
```

DEFROST

F3   forces all cases in selected stub to DEFROST mode
after giving message:-

```
*** DEFROST Selected ***
```

Stub detail is redisplayed with DEFROST status for stub.

AUTO

F4   forces all cases in selected stub back to AUTO mode with temperature control and
alarms operational after giving message

```
*** AUTO Selected ***
```

Stub detail is redisplayed with auto status for stub.

FANS

F5   forces all cases in selected stub to FANS ONLY mode, terminates any manually
selected defrosts, stops temperature   control and inhibits all stub alarms after giving
message

```
*** FANS Selected ***
```

Stub detail is redisplayed with FANS status for stub.

OFF

F6   forces all cases in selected stub to   OFF mode, terminates any manually selected
defrosts,   stops temperature control and inhibits all stub alarms after giving message

```
*** OFF Selected ***
```

Stub detail is redisplayed with OFF status for stub.

Settings
F7   allows the control settings of the unit to be displayed and modified similar to MAIN
MENU function F7 (See page 56).
Next Page
F9   displays the next page of stub details in sequence for stubs 1-80.
(e.g. 33 if on stub 32).
Done
F10   returns to display from which Stub Detail was selected .

Display Graphs F3

Main Menu F3 displays the first of five pages of Graph selection overviews which contains the latest values or states of the points being recorded for graphing. Each graph may contain up to 4 points which can be measured values of pressure, temperature, percent load or capacity, differential pressures, motor hoursrun, superheat or digital ON/OFF states.

```
====================[Microm Electronics - Guardian AutoGraph Terminal]=====================P
 SHANGHAI                      GRAPHS                        07:25:36 Wed Mar 22 1995
Graph _____Name_____ Status ____T-1_____T-2_____T-3_____T-4____
    1 *** SET-1 ** Suction            0.1
    2 Pressures     Low S-1           0.1        1.0        1.1        1.1
    3 Temperatures  Low S-1          12.0       19.0       12.0       23.0
    4 Capacity %    Low S-1          10.0
    5 Pressures    High S-1           1.5        1.4        1.5        1.5
    6 Temperature  High S-1          13.0       17.0       13.0       23.0
    7 Capacity %   High S-1          11.0
    8 Motor Load %    SET-1           0.0
    9 Gearbox Press.  SET-1           0.1
   10 Winding Temps   SET-1          51.0       53.0       53.0
   11 Bearing Temps.  SET-1          35.0       38.0
   12
   13 Graph Number 13
   14 Graph Number 14
   15 Graph Number 15
   16 Graph Number 16


 F1            F2           F3        F4        F6          F7          F9       F10
 Edit      ViewGraph    ViewData History    Scaling    SetTrends    NextPage   Done
```

STANDARD KEYS

cursor down arrow	highlights next graph line
cursor up arrow	highlights previous graph line
PgUp	displays next page in sequence
PgDn	displays previous page in sequence
Esc	displays MAIN MENU

STATUS

- any stub in alarm has   * ALARM status .
alarms can be High or Low for values or Fail for digital states.

VALUES

Temperatures (-40 to +40C) are displayed to the nearest 0.5C
Temperatures (0 to +125C) are displayed to the nearest 1.0C
Values are displayed as   ' oc' for open circuit probes.
'   sc' for short circuit probes.
'   nF' for not fitted circuit probes.
'   ? ' for communication errors.

View Graph, ViewData, History, NextPage and Done

(See operations section on pages 22, 24, 25)

Set Scaling

when pressed F6 displays pop-up window to Configure graph scaling
as below

```
╔════════════[Graph Set Scaling]════════════╗
║                                            ║
║    Maximum Y value  :     20               ║
║    Minimum Y value  :    -40               ║
║                                            ║
║    High Alarm Band  :      0               ║
║    Low  Alarm Band  :      0               ║
║                                            ║
║    Digital  ON Value:      0               ║
║    Digital OFF Value:      0               ║
║                                            ║
║    Y axis label:    TEMPERATURE            ║
║    Y axis units:    deg C                  ║
║    Y axis steps:      6                    ║
║                                            ║
╚════════════════════════════════════════════╝
```

Maximum Y value   9999
Minimum Y value   -99

High Alarm Band   5   straight line for high level
Low Alarm Band   2   "   low   "

digital on (s/c)   10   straight line if digital on
digital off (o/c)   -10   "   "   "   "   off

Y-axis Label   TEMPERATURE /PRESSURE/LOAD etc.
Y-axis units   deg C   /barg / %   etc
Y-axis steps   1 to 9
Y-axis steps determines the increment displayed for the Y-axis
e.g.   -40 to 40 C with Y-axis step=8 displays increments of 10 C
               0 to 18 bar with Y-axis step=9 displays increments of 2 bar
               0 to 100%   with y-axis step =5 displays increments of 20%

Set Trends

F7 displays a pop-up window to configure Graph trends

```
╔════════════[Graph Set Trends]════════════╗
║                                          ║
║   Name: Pressures    Low S-1             ║
║                                          ║
║   Number of Trends       4               ║
║                                          ║
║                      Address    Point    ║
║   Trend 1               2         1       ║
║   Trend 2               2         2       ║
║   Trend 3               2         3       ║
║   Trend 4               2         4       ║
║                                          ║
║   Daily Auto Logging:        0           ║
║                                          ║
╚══════════════════════════════════════════╝
```
.
Trend 1-4 graphs are specified by a unit address and an analogue or digital point reference.
Addresses are in the range 1-249 and are the unit address of   the required
zone/controller/monitor. Point references are measurements references (0-9) i.e.
temperatures, pressures, capacity, load %, etc. or digital state reference (ABCD EFGH).
Digital trends must have digital on value and digital off values set-up using F6 above.
Daily Auto logging   0 or 1   =1 if graph to print daily

Display Defrost Times F4

Main Menu F4 displays the first of five pages of stub defrost times. Each system/stub may be programmed to have up to 6 defrost times per day. The system/stub name, defrost period, defrost type and control status are displayed with 16 stubs/page as below. The displays may also be used with the cursor line to select a particular refrigeration stub for changing set points and defrost times after selecting F7 Settings with the correct password .

```
================[Microm Electronics - Guardian AutoGraph Terminal]===============A
  T.Hemel Hempstead            DEFROST TIMES             14:54:18 Mon Apr 28 1997
  
Stub _____name_____   Type Status    _T1__ _T2__ _T3__ _T4__ _T5__ _T6__ Per(m)
   1  18ft f/f GEL/GJL HG-T            0001  0601  1201  1801  0000  0000    20
   2  28ft f/f GJL     HG-T            0040  0640  1240  1840  0000  0000    20
   3  24ft f/f GJL     HG-T            0120  0720  1320  1920  0000  0000    20
   4  24ft f/f T43     HG-C            0200  0800  1400  2000  0000  0000    17
   5  20ft f/f T43     HG-C DEFROST    0240  0840  1440  2040  0000  0000    17
   6  24ft f/f T43     HG-C            0320  0920  1520  2120  0000  0000    17
   7  20ft f/f T43     HG-C            0400  1000  1600  2200  0000  0000    17
   8  2.4m back deli   Stor            0440  1040  1640  2240  0000  0000    20
   9  50% f/f freezer  Stor            0140  0540  0940  1340  1740  2140    20
  10  Spare            HG-T            0000  0600  1200  1800  0000  0000    20
  11  Spare            HG-T            0030  0630  1230  1830  0000  0000    20
  12  36ft f/f GJL     HG-T            0001  0601  1201  1801  0000  0000    20
  13  36ft f/f GJL     HG-T            0040  0640  1240  1840  0000  0000    20
  14  18ft f/f T43     HG-C            0120  0720  1320  1920  0000  0000    17
  15  12ft f/f T43     HG-C            0200  0800  1400  2000  0000  0000    17
  16  18ft f/f T43     HG-C DEFROST    0240  0840  1440  2040  0000  0000    17


  F1            F3                        F7               F9          F10
Find Stub    Print All                 Settings        Next Page      Done
```

STANDARD KEYS

up/down arrows   highlights selected stub line for settings change
PgUp   displays next stub defrost times page in sequence
PgDn   displays previous defrost times page in sequence
Esc   returns to MAIN MENU.

STATUS

are as defined for Store Temperature display.- any stub in defrost has DEFROST status .

DEFROST TYPES   defrost types can be

> **O-C**   Off-cycle defrost
> **HG-C** Hotgas cycling around a set discharge temperature
> **HG-T** Hotgas terminating on a specific discharge temperature
> **Stor** Coldstore terminating on a specific coil temp. with Fans off during defrost.
> **HGT8** Hotgas terminating on a specific coil temperature

DEFROST TIMES & PERIOD

are as defined later in MAIN MENU F7 Change Stub Settings on page .56

Find

F1   highlights the stub defrost times for the stub selected from prompt

```
  Enter stub number (1-80) for display :-
```

Print All

F3   prints all Defrost time clock settings as displayed above but with 40 stubs per page.

Settings

F7   selects the settings for the highlighted stub and allows them to be displayed and modified similar to MAIN MENU function F7 (page 56).
 These settings include defrost type, timeclocks and defrost period   *Next Page*

F9   displays the next page of stub defrost times in sequence for stubs 1-16, 17-32, etc.
Done   F10 returns to MAIN MENU.

Display Compressors F5

Main Menu F5   displays the Compressor Overview page which contains the control set point, suction and discharge pressures and capacity for each compressor. This display may also be used with the cursor line to select a detail display, (F2), set point display, (F4), or alarm limits display, (F6), for a particular compressor. The system caters for a maximum of 15 compressors. These may be SCC or RCC types as the package has standard display formats for them.

```
════════════[Microm Electronics - Guardian AutoGraph Terminal]═══════════P
 SHANGHAI                    Compressor Overview        07:27:18 Wed Mar 22 1995
Unit____name_____..status.__SUCTION_____SETPOINT____DISCHARGE___CAPACITY___
  1 SET-1 Low-stage      OFF       0.1       -0.2         1.0        10.0
  2 SET-1 High-stage     TRIP      1.5        2.1         1.4        11.0
  3 SET-2 Low-stage      OFF       0.2       -0.2         2.3        82.0
  4 SET-2 High-stage     TRIP      2.6        2.1         6.5        94.0
  5 SET-3 Low-stage      OFF       0.1       -0.2         0.5         9.0
  6 SET-3 High-stage               1.6        2.1         1.7        13.0
  7 SET-4 Low-stage                -?-       -0.2         -?-         -?-
  8 SET-4 High-stage               -?-        2.1         -?-         -?-
  9 MOTOR TEMPS.         TRIP      n/f        0.0         n/f        38.0
 10

 ┌──────────────────────────────────────────────────────────────────────────┐
  F1      F2               F4            F6       F7          F8          F10
 Edit    Detail        Setpoints      Limits  Configure  Alarm List      Done
```

STANDARD KEYS
up/down arrows   highlights selected Compressor line for settings
change, etc.
Esc   returns to MAIN MENU.
STATUS
- any Compressor in alarm has   Hi/Low! status.
- any Compressor tripped has   Trip status.
- any Compressor selected OFF mode has   OFF status.
- any Compressor selected Manual mode has   MAN status.
- any Compressor on Delay after stop,
Time between restart or
Low oil separator temp. has   WAIT status .

VALUES
Suction pressure, control setpoint, discharge pressure
and capacity are displayed for each compressor.
Pressures (-1 to +25 Bar) are displayed to the nearest
Bar.
Values are displayed as:-

' oc' for open circuit transducer.
' sc' for short circuit transducer.
' nF' for not fitted transducer.
' ? ' for communication errors.

Edit

See configuration section page .

Detail

F2 displays the latest values of pressure, temperature, etc and the state of the digital inputs and outputs for the highlighted compressor
.

```
================[Microm Electronics - Guardian AutoGraph Terminal]===============
 SHANGHAI                     Compressor Detail          07:27:30 Wed Mar 22 1995
Unit____name_____..status.__SUCTION_____SETPOINT_____DISCHARGE___CAPACITY___
 1 SET-1 Low-stage      OFF       0.1         -0.2         1.0         10.0

                       mode     Motor Load % Motor AMPS   1000HoursRun
   LOW_STAGE UNIT       OFF         0.0          0.0          32.0
                      SUCTION    DISCHARGE      OIL         FILTER
   PRESSURES bar g      0.1         1.0          1.1          1.1
                      SUCTION    DISCHARGE    OIL inject   OIL heater
   TEMPERATURE 'C       13.0        19.0         12.0         23.0
                      SUCTION    DISCHARGE                 Gearbox Pres
   Equivalent Temps    -32.0       -19.0                      0.1
                      SUCTION 'C  DISCHARGE      OIL         FILTER
   Differentials        45.0        0.9          0.1          0.0
                      oil pump     motor      Economiser   Injection
   OUTPUTS RELAYS        off         off          off          off
                      Pump run    Motor run   Slide_at_Min Slide_at_max
   INPUTS SIGNALS       stop        stop          on           off
                      L.T. trip   H.T. trip   Oil Level    Oil Flow
   SAFETY TRIPS

  F1       F2      F3      F4    F5     F6        F7          F8         F9      F10
FindComp RESET  REMOTE  LOCAL  OFF   Limits  Configure     Setup    NextComp Done
```

This display may vary depending on the compressor model being used,(i.e. SCC40, SCC35, RCC, etc.), as the input/output configurations vary. The software package has standard display configurations for each model. (see Configuration page).This display may be further customised. (see Configuration section page).

FindComp

F1 finds and displays the compressor Detail, as above, for the compressor selected at the prompt.

```
  Enter compressor number (1-10) for display ->
```

Reset

F2 forces the compressor out of the tripped state.
Providing the tripped condition has cleared the
compressor will resume its last mode of operation
after giving message:-

```
                   *** RESET Selected ***
```

REMOTE.

Pressing F3 forces the compressor into Remote Auto mode operation after giving the message:-

```
*** REMOTE Selected ***
```

LOCAL.

F4 forces the compressor into Local Auto mode operation after giving the message:-

```
*** LOCAL Selected ***
```

OFF.

F5 forces the compressor to Off mode after giving
the messages:-

```
Are you Sure ! [Enter=Yes Esc=No] ?
```

Pressing Esc aborts the request. Otherwise

```
*** OFF Selected ***
```

iis displayed.

iIf the compressor is running then it will go through a controlled shutdown as if the STOP button had been pressed.(SCC or RCC30) The compressor may be restarted by using F4 or F5 above.

Limits.

F6 displays the first page of the alarm limits as in Limits on page

.
Setup.

This facility is a system utility only and is not available.

Next Page.

F9 cycles round the three format pages, e.g. pressing F9 on format page 3 causes format page 1 to be displayed.

Done.

F10 completes the limits display function and returns to the Overview display.

Configure.

F7 allows a standard format to be loaded for the highlighted compressor.
See configuration section page .

Graph.

F3 goes to the first graph overview for the selected compressor.

Alarm List.

F8 has the same function as Main Menu F8, it displays the alarm history and accepts any current alarms.

Done.

F10 completes the Overview display function and returns to the Main Menu.

Set points.

F4 allows access to the setpoint settings, for the highlighted compressor

```
===========[Microm Electronics - Guardian AutoGraph Terminal v5.0f]===========
     Fremantle          Compressor Setpoints      23:32:53 Mon Apr 28 1997
  3 M.T. RACK C
                         =Value=      =Max=      =Min=
  1 Suction Setpoint       3.0          5.0       -0.5
  2 RCC20 m6PAC             4.0          4.0        4.0
  3 Motor1 Capacity%       25.0        100.0        0.0
  4 Motor2 Capacity%       25.0        100.0        0.0
  5 Motor3 Capacity%       25.0        100.0        0.0
  6 Motor4 Capacity%       25.0        100.0        0.0
  7 Motor5 Capacity%        0.0        100.0        0.0
  8 Motor6 Capacity%        0.0        100.0        0.0
  9 Stage_up delay          0.2         12.5        0.2
 10 Stage_down delay        0.2         10.0        0.2
 11 Suction Deadband        0.2          1.0        0.1
 12 Delay_after_stop        1.0         12.5        1.0
 13 Starts/Hour            15.0         15.0        2.0
 14 Loading neg/pos         0.0          0.1        0.0
 15 SateliteSetpoint        0.0          5.0       -0.9
 16 Satelite Compr.         0.0          0.1        0.0

              F2                       F6                      F10
           Transfer                 Settings                  Done
```

The set points display consists of the setpoint name, its current setting and the maximum and minimum range of adjustment.

The cursor control keys are used to highlight the setpoint required to be changed. Any changes made at this point only change the data in the PC.

Transfer.

F2 allows the transfer of setpoints between the PC and the compressor controller. After pressing F2 the following is displayed:
-

```
===============[TRANSFER COMPRESSOR SETTINGS]===============
            F1                            F3
      Send to Compressor          Read from Compressor
```

F1 sends the data from the PC to the compressor, displaying the following message:
-

```
                    *** Sending Setpoints ***
```

If the data has been successfully sent the display is returned to the setpoints page. If an error occurred in the transfer then the following message is briefly displayed:
-

```
                  *** No reply from Compressor ***
```

F3 reads the current setpoint settings from the compressor controller and overwrites the current PC settings if the transfer is successful.

```
╔══════════════════════════════════════════════════════╗
║                                                      ║
║            *** Reading Setpoints ****                ║
║                                                      ║
╚══════════════════════════════════════════════════════╝
```

It will also display the fail message if a problem has occurred.

Settings.

F6 allows the highlighted setpoint to be changed.

```
╔════════════════[Compressor Setpoints (Microm)]════════════════╗
║                                                              ║
║   Name  :  Suction Setpoint      Max   :      5.0            ║
║   Value :       3.0              Min   :     -0.5            ║
╚══════════════════════════════════════════════════════════════╝
```

If a number outside the max/min range is entered an audible indication is given. An incorrect entry may be edited by using the Backspace key and then re-entering a correct value or press the Escape key to revert to the original value.

Done.   F10 returns to the Overview display.

Limits.

Sub menu F6 on Compressor Overview or Compressor Detail displays the first page of the Alarm and Trip limits for the highlighted compressor. There are a maximum of 3 format pages per compressor, which define the input/output range for the compressor.
The displays may vary depending on the compressor type.

```
┌──────────────[Microm Electronics - Guardian AutoGraph Terminal v5.0f]──────────────┐
│        Fremantle              Alarm & Trip Limits           23:33:39 Mon Apr 28 1997│
│     3 M.T. RACK C          -        C4L1 (inc Sat-C)                                 │
│═════════════════════ Value Alarm D=LowAlarm══HiAlarm══════LowTrip══════HighTrip═════│
│1 suction press       3.2              0.0       8.0         0.0          0.0         │
│2 discharge press    14.1               ..      20.0          ..         22.0         │
│3                     n/f               ..        ..          ..           ..         │
│4 liquid level       62.0             10.0        ..          ..           ..         │
│5                     n/f               ..        ..          ..           ..         │
│6                     n/f               ..        ..          ..           ..         │
│7 Pack Load           0.0               ..     174.0          ..           ..         │
│8                     0.0               ..        ..          ..           ..         │
│9 pack capacity %    50.0               ..        ..          ..           ..         │
│═══════ INPUTS ═══════ state Alarm I type_mode_guard╥═══════ OUTPUTS ═══════ state ═══│
│A                      off            8    0    0  ║ I Motor 1              off        │
│B Local Auto Sw.        on            8    0    0  ║ J Motor 2              off        │
│C Oil Level                          16    0   30  ║ K Motor 3               on        │
│D Liquid Level         off            8    3   30  ║ L Motor 4               on        │
│E Mains Safety                       13    3    0  ║ M Motor 5              off        │
│F                                    12    3    0  ║ N Motor 6              off        │
│G                                    12    3    0  ║ O System Healthy        on        │
│H                                    12    3    5  ║ P                       on        │
│═ F1 ═════ F2 ═════ F3 ═════════════════╳═════════ F6 ════║═══ F7 ═══ F9 ═══ F10 ═════│
│FindPage Transfer Name                      Set Limits      Setup  Next Page   Done   │
└─────────────────────────────────────────────────────────────────────────────────────┘
```

The page is split into two sections. The upper half of the display, (points 1 to 9), consists of the analogue input name, its' current value, alarm status,(blank means no alarm), and the limits that it is checked against.
The second half of the display consists of the digital inputs, (points A to H), with input name, current state, alarm status, type of input and alarm mode.
To the lower right of the display are the digital outputs, (points I to P), with the output name and its' current state.

FindPage.
F1 gives access to any format page from any other format page for the selected compressor. Pressing F1 gives the following prompt:-

```
┌─────────────────────────────────────────────┐
│  Enter page number (1-3) for display ->     │
└─────────────────────────────────────────────┘
```

Transfer.

F2 allows the transfer of alarm limits between the PC and the compressor controller. After pressing F2 the following is displayed:-

```
┌═══════════════[TRANSFER COMPRESSOR SETTINGS]════════════════┐
│             F1              ║              F3               │
│     Send to Compressor      ║      Read from Compressor      │
└─────────────────────────────────────────────────────────────┘
```

F1 sends the data from the PC to the compressor If the data has been successfully sent the display is returned to the limits page. If an error occurred in the transfer then the following message is briefly displayed:-

```
┌─────────────────────────────────────────────┐
│                                             │
│         *** Communications Failure ***      │
│                                             │
└─────────────────────────────────────────────┘
```

F3 reads the current alarm limit settings from the compressor controller and overwrites the current PC settings if the transfer is successful.

Name.

F3 allows a sixteen character name to be allocated
to the selected compressor. Pressing F3 gives the
following prompt:-

```
╔══════════════════════════════════════════════════╗
║  Enter new compressor name ->M.T. Rack C           ║
╚══════════════════════════════════════════════════╝
```

Set Limits.

The cursor control keys are used to move the high-light bar to the point that requires changing. Pressing F6 gives the following display for a high-
lighted analogue point,(points 1 to 9):-

```
════════════════════════[Compressor Alarm]════════════════
    Point name :     suction press

                     Alarm       Max        Min      Display
                     Value       Value      Value    1=ON/0=OFF

        LowAlarm:      1.0        24.0       -1.0        1
        HiAlarm:      15.0        24.0       -1.0        1
        LowTrip:       0.5        24.0       -1.0        1
        HighTrip:     20.0        24.0       -1.0        1
```

This allows the point name to be changed and adjustment of the alarm value for low alarm, high alarm, low trip and high trip. Limits that are not available for a particular point are labelled 'n/a'. The cursor control keys are used to move the high light bar between the adjustable fields. The max/min values give the range within which the limit may be changed.

Moving the highlight bar to the digital inputs, (points A to H), and pressing F6 gives the following display:-

```
═════════════[Microm Electronics - Guardian AutoGraph Terminal v5.1b]═══════════P
┌[Types and Modes]═      Alarm & Trip Limits       11:37:12 Tue Apr 29 1997║
│Types                  -      Format Page 1                            ghTrip═
│                  Value Al┌════════════════[Compressor Trip]═══════════┐ .0
│   0 = analogue     -?- COM│                                            │ .0
│   8 = on  /off     -?-    │   Input name    :   at minimum             │ .0
│   9 = run /stop    -?-    │                                            │ .0
│  10 = open/shut    -?-    │   Alarm Type    :   -25                     │ .0
│  11 = -OFF/ .      -?-    │   Alarm Mode    :     0                     │ .0
│  12 = open/              │   Guard Time    :    30                     │ .0
│  13 = trip/       32769  │                                            │ .0
│  14 = high/        -?-   │   Output name   :   pump                    │ .0
│  15 = shut/open    -?-   │                                            │ .0
│  16 = low/        state Al└════════════════════════════════════════════┘ state =
│  17 =     /trip    off        -25    0    30  I pump             off
│Modes               off        -25    0    30  J compr. motor     off
│                    off        -25    0    30  K Loading          off
│   0 = high/on      off        -25    0    30  L Unloading        off
│   1 = low /off     off        -25    0    30  M Economiser       off
│   2 = high/low     off        -25    0    30  N Oil Injection    off
│   3 = none         off        -25    0    30  O Oil Heater       off
│                    off        -25    0    30  P Tripped          off
═ F1 ════ F2 ════ F3 ═════════════╳═════════════ F6 ════ F7 ═══ F9 ════ F10 ═
FindPage Transfer Name                         Set Limits  Setup Next Page Done
```

This gives access to name changing and enables the input to be defined via the 'Type' and 'Mode' facilities.
The Type number, defined in the top left section of the display, specifies what is displayed in the state field for the point.

The Mode number, defined in the lower left section of the display, specifies the state which causes an alarm.

The Guard Time field specifies the time in minutes, after a change in state of the input to the alarm state, at which the alarm is generated.

The Output name refers to the corresponding digital output point ,(points I to P),. And are usually pre-defined by the compressor model selection.

Configure.

F7 is used to configure the data to be displayed on the Compressor Detail page. Standard formats are included for each compressor model. These may then be further customised by using the F7 function.(See configuration section page).

Set-up.

F8 enables the default set-up to be changed. It allows a 16 character name for the compressor, the number of format pages and their highway addresses to be specified. This function is used mainly to remove unwanted formats.

```
════════[Set Compressor Formats]════════

   Name :   Compressor No.1

   Number of Format Pages:      3

   Page 1 Address     210
   Page 2 Address     211
   Page 3 Address     212

   System Number       0

   System Alarm Action         0
   (0=Dialout 1=Print only)
```

If used with an AGT alarm panel then the alarm action for the unit can be selected to print only or activate the extenal alarm system.

NextComp.

F9   displays the next page of compressor details in sequence for compressors 1-10.
(e.g. 6 if on compressor 5).

Done

F10 returns to display Compressor Overview.

Change Zone Settings F6

Main Menu F6 is used to change alarm settings for controllers and monitoring units that are not covered by stub settings or compressor settings.

```
=========[Microm Electronics - Guardian AutoGraph Terminal v5.0f]=========A
       CAMBERWELL              ZONE ALARM LIMITS          14:41:54 Fri Mar 07 1997
    1 SYS A2 MODS 4-7
____Point_____Value_ALARM__Type_Mode___Setpoint_Diff/Dial__Guard(m)_
Temp.1                           n/f          0    0      -27.0    12.0         90
      2 AVERAGE                 -28.0         0    0      -27.0    12.0         90
      3 MODULE  28              -26.5         0    0      -27.0    12.0         90
      4 MODULE  29              -26.0         0    0      -27.0    12.0         90
      5 MODULE  30              -26.0         0    0      -27.0    12.0         90
      6 MODULE  31              -27.5         0    0      -27.0    12.0         90
      7 MODULE  32               o/c          0    3      -27.0    12.0         90
      8                          o/c          0    3        1.0    12.0         90
      9                          n/f          0    3        0.0    12.0         90
InputA Door                      off          0    3                            0
      B OFF                      off          0    3                            0
      C Fans Only                off          0    3                            0
      D Defrost                  off          0    3                            0
      E Heater                   off          0    1                            0
      F Fan-C                    off          0    3                            0
      G Fan-B                    off          0    3                            0
      H Fan-A                    on           0    1                            0
_____
  F1          F2           F3          F4                          F9          F10
 Edit      Transfer    Name/Addr     Setup                      Next Page     Done
```

STANDARD KEYS

cursor down arrow	highlights next point
cursor up arrow	highlights previous point
PgUp	displays next page in sequence
PgDn	displays previous page in sequence
Esc	displays previous MENU

Edit

see configuration section page .

Transfer.

F2 allows the transfer of parameters between the PC and the controller. After pressing F2 the following is displayed:-

```
========[TRANSFER ZONE SETTINGS]========
          F1                 ||          F3
     Send to Zone            ||     Read from Zone
```

F1 sends the PC parameters to the controller . If the transfer was not successful the following message is briefly displayed:-

```
              *** Communications Failure ***
```

F3 requests the parameters from the controllers. If the transfer is not successful then the fail message is displayed.

Name/Addr.

F3 allows the Zone name to be changed and the address of the controller to be allocated.

```
=============[Zone Name & Address]=============

    Name     :  Zone Number 1

    Address  :  140

```

Setup

F4 enables changes to be made to the alarm parameters in the PC.

```
┌[Types and Modes]┐
│Types            │
│                 │
│  0 = analogue   │
│  8 = on  /off   │
│  9 = run /stop  │
│ 10 = open/shut  │
│ 11 = -OFF/ .    │
│ 12 = open/                    =====[Configure Alarm Point]=====
│ 13 = trip/
│ 14 = high/                       Point name :   discharge air        _
│ 15 = shut/open
│ 16 = low/                        Type      :    0
│ 17 =     /trip                   Mode      :    0
│Modes                             Setpoint  :   -25.0
│                                  Diff/Dial :     5.0
│  0 = high/on                     Guard Time :   30     (min)
│  1 = low /off
│  2 = high/low
│  3 = none
```

The cursor control keys are used to highlight the parameter required to be changed.
Numeric parameters are changed by using the 0 to 9 keys and the minus key if required.
    The Type number, defined in the top left section of the display, specifies what is displayed in the state field for the point.
The Mode number, defined in the lower left section of the display, specifies the state which causes an alarm.
 Any changes made at this point only change the data in the PC.

For the changes to be made in the controller the F2 transfer function must be used.

Change Stub Settings F7

Main Menu F7 provides the latest control settings display with modification facilities for all refrigeration case controllers and prompts:-

```
Enter stub number (1-80) for display :-
```

Typing the required stub number (e.g. 33) followed by enter displays:-

```
═══════════[Microm Electronics - Guardian AutoGraph Terminal v5.0d]═══════════A
   STH MELBOURNE          STUB SETTINGS              14:38:40 Fri Mar 07 1997
 2 A1 17DR GDFZ                         1         2         3         4
                              Time:  1438      1438      1438      1437
   c   Control cutin      -17         -17       -17       -17       -17
   pr  Product Ratio       99          99        99        99        99
       Relay 3 Type       HTR         HTR       HTR       HTR       HTR
       Defrost Type       Stor        Stor      Stor      Stor      Stor
   dn  No. of defrosts/day  2           2         2         2         2
   1H  First defrost hours  0           0         0         0         0
   1t  First defrost mins   1           1         1         1         1
    d  Termination temp.   20          20        20        20        20
   dd  Termination diff.    2           2         2         2         2
   dP  Defrost Period (m)  40          40        40        40        40
   Lt  Liquid Draindown (m) 1           1         1         1         1
   Ft  Fan delay (m)        1           1         1         1         1
   Gt  Alarm Guardtime (m) 90          90        90        90        90
   Ad  Alarm differential   7           7         7         7         7

DEFROST TIMES           Type Status   T1    T2    T3    T4    T5    T6  Per(m)
 2  A1 17DR GDFZ        Stor          0001  1201  0000  0000  0000  0000    40

 F1       F2        F3      F4                            F9        F10
 Edit     Transfer  Name    Setup                        Next Page Done
```

STANDARD KEYS

cursor down arrow	highlights next parameter
cursor up arrow	highlights previous parameter
space bar	changes text based parameters
PgUp	displays next page in sequence
PgDn	displays previous page in sequence
Esc	displays previous MENU

The display is split into 3 sections:-
1. The PC settings, contained in the box to the left of the screen it consists of 3 parts:
   i)   The abbreviation for the parameter used when accessed via the SKD9 keypad
   e.g. 'pr'
   ii) The parameter description e.g. 'Product Ratio'
   iii) The value of the parameter contained in the PC. e.g. '99'

2. The controller parameters, to the right of the PC settings with one column per controller at the same stub address.
3. The Defrost Times.

The cursor control keys are used to highlight the parameter required to be changed.
If a text based parameter is highlighted it is changed by pressing the space bar, repeated pressing of which will cycle through available selections. Numeric parameters are changed by using the 0 to 9 keys and the minus key if required.

Any changes made at this point only change the data in the PC.

Transfer.

F2 allows the transfer of parameters between the PC and the controller. After pressing F2 the following is displayed:-

```
╔══════════════[TRANSFER CASE SETTINGS]══════════════╗
║                          ║                          ║
║           F1             ║           F3             ║
║     Send to all Cases    ║     Read from Case 1     ║
╚════════════════════════════════════════════════════╝
```

F1 sends the PC parameters to all controllers at the stub address. If the transfer was not successful the following message is briefly displayed:-

```
╔════════════════════════════════════════════════════╗
║                                                    ║
║              *** No reply from case 1 ***          ║
║                                                    ║
╚════════════════════════════════════════════════════╝
```

F3 requests the parameters from the controllers. If the transfer is not successful then a column of question marks is displayed.

```
══════════[Microm Electronics - Guardian AutoGraph Terminal v5.1b]══════════
Any Supermarket           STUB SETTINGS              18:03:36 Tue Apr 29 1997
 1 Stub Number 1                          1        2        3        4
                              Time:      0000     0000     0000     0000
   c   Control cutin      -20           -?-      -?-      -?-      -?-
  pr   Product Ratio        7           -?-      -?-      -?-      -?-
       Relay 3 Type       HGAS          -?-      -?-      -?-      -?-
       Defrost Type       O-C           -?-      -?-      -?-      -?-
  dn   No. of defrosts/day   4          -?-      -?-      -?-      -?-
  1H   First defrost hours   1          -?-      -?-      -?-      -?-
  1t   First defrost mins    0          -?-      -?-      -?-      -?-
   d   Termination temp.    15          -?-      -?-      -?-      -?-
  dd   Termination diff.     3          -?-      -?-      -?-      -?-
  dP   Defrost Period (m)   15          -?-      -?-      -?-      -?-
  Lt   Liquid Draindown (m)  1          -?-      -?-      -?-      -?-
  Ft   Fan delay (m)         3          -?-      -?-      -?-      -?-
  Gt   Alarm Guardtime (m)  45          -?-      -?-      -?-      -?-
  Ad   Alarm differential    5          -?-      -?-      -?-      -?-

DEFROST TIMES              Type Status   T1    T2    T3    T4    T5    T6  Per(m)
  1   Stub Number 1        O-C           0100  0700  1300  1900  0000  0000    15

   F1        F2        F3     F4                              F9        F10
  Edit    Transfer    Name   Setup                        Next Page   Done
```

Name

F3 allows the 16 character name to be changed giving the prompt:

```
╔════════════════════════════════════════════╗
║  Enter New Stub Name ->A1 17DR GDFZ          ║
╚════════════════════════════════════════════╝
```

The backspace key can be used to delete characters.

Setup

F4 allows the stub to be configured :

```
════════[Configure Stub]════════
   Number of Cases       3
   Valve Type           LSOL
   Address - Case 1       3
           - Case 2       4
           - Case 3       5
           - Case 4       0
   Case Alarm Action      0
   (0=Dialout 1=Print only)
```

The number of cases relates to the number of controllers on the same stub. These should then be given consecutive addresses.

The valve type has two selections, 'Lsol', for controllers with liquid solenoid valves and 'EEV' for controllers with electronic expansion valve control. The selection is changed by pressing the space bar.

Alarm action applies to all controllers on the stub.

NextPage

If 'LSOL' is selected then F9 selects the next stubs settings. If 'EEV' is selected then pressing F9 selects the second page of setpoints:

```
════════[Microm Electronics - Guardian AutoGraph Terminal v5.0f]════════
   `  OCEAN GROVE        STUB SETTINGS           14:32:23 Fri Mar 07 1997
   2 A1 13DOOR F/FOOD                  1          2          3          4
                           Time:    1431       1431       1431
        Unit Type          RCU        RCU        RCU        RCU
        Control Type       EET        EET        EET        EET
   sh   SuperHeat High       9          9          9          9
   sl   SuperHeat Low        5          5          5          5
   sa   SuperHeat Alarm      0          0          0          0
   sb   Stable Band          0          0          0          0
   sd   Stable Delay (m)    20         20         20         20
   E    Evaporating Temp.  -15        -15        -15        -15
   dr   Defrost Recovery %  65         65         65         65
   so   Start Output %      65         65         65         65
   tf   Time oFF (m)         1          1          1          1
   tn   Time oN (m)          2          2          2          2
   ot   Fan off time(m)    0.0        0.0        0.0        0.0
   bt   Bypass Time (m)    0.0        0.0        0.0        0.0
   Pt   Pumpdown Time(m)   0.0        0.0        0.0        0.0
   St   Suction Time (m)   0.0        0.0        0.0        0.0

   F1       F2        F3       F4                        F9        F10
   Edit     Transfer  Name     Setup                     Next Page Done
```

Changes are made in the same way as the first page of settings(see page .). Also F2 Transfer must be used to send and receive this page of settings.

Done

F10 returns to the previous menu .

Display Alarm List & Accept Alarm F8

Main Menu F8 displays the first of 12 pages of the Alarm List. The last 200 alarms which have occurred are displayed in reverse chronological order with each line giving the alarm description and time and date of alarm. All unaccepted alarms are 'Accepted' when F8 is pressed and the event is stored in the Alarm List with time and date of acceptance and the password level in use.

```
═══════════[Microm Electronics - Guardian AutoGraph Terminal v5.0b]═══════════P
      BATEAU BAY              ALARM HISTORY              21:08:39 Mon Apr 28 1997
 Time___Date___Address_____Zone_____Point_____Value___State_
  0105  10/04/97                               User Password          ACCEPTED
  0104  10/04/97                                                         MUTED
  0035  10/04/97   3/5   A1 28DR FREEZER      -MODULE 5         -9.0      High
  0028  10/04/97   6/1   SYS A2/G1.2.3        -F/FOOD A2 MOD 7  -3.0      High
  0024  10/04/97   3/6   A1 28DR FREEZER      -MODULE 6         -6.0      High
  0021  10/04/97  12/6   SYSB2/D5/E2.3/A3     -F/BAK' A3 MOD 52  1.5      High
  0014  10/04/97   3/4   A1 28DR FREEZER      -MODULE 4         -7.0      High
  0011  10/04/97                               Contractors Password  ACCEPTED
  0006  10/04/97   3/1   A1 28DR FREEZER      -MODULE 1          5.0      High
  0001  10/04/97   3/3   A1 28DR FREEZER      -MODULE 3          8.0      High
  2356  09/04/97 153/C   SYSTEM B 1-LT        -Oil Pressure     trip      Fail
  2355  09/04/97   3/2   A1 28DR FREEZER      -MODULE 2          4.5      High
  2347  09/04/97 153/C   SYSTEM B 1-LT        -Oil Pressure     trip      Fail
  2344  09/04/97 153/C   SYSTEM B 1-LT        -Oil Pressure     trip      Fail
  2341  09/04/97                               Contractors Password  ACCEPTED
  2340  09/04/97 153/C   SYSTEM B 1-LT        -Oil Pressure     trip      Fail


            F3       F4              F7        F8          F9          F10
          Graph  Print All        Setup    Last Page   Next Page     Done
```

Graph.

F3 displays the graph overview for the highlighted alarm.

Print All

F4 prints the displayed alarms.

Setup.

F7 provides a global enable/disable function for a group of alarms.
It also enables an AGT alarm panel to be tested by entering a 1 to turn on the output and a 0 to turn it off.

```
═════════════[Alarm Setup]═════════════

        Action on Alarm States
     Enter 1 to Enable, 0 to Disable

        Analogue High Alarm   1
        Analogue Low Alarm    1
        Analogue Trip Alarm   1
        Digital Trip Alarm    1
        Comms Fail Alarm      1

     Test Alarm Outputs
      AGT   AGT  DIALOUT  ALARM
     BLEEP  LED   RELAY   RELAY
       0     0     0        0
```

LastPage.
F8   displays the last page of alarms.
NextPage.
F9   displays the next page of alarms. Repeatedly pressing F9 will eventually cycle round back to the start of the list.
Done
F10 returns to display Main Menu.

Enter Password F9

Main Menu F9. Certain menu functions are only displayed if the correct password has been entered previously, while others request password entry before proceeding further.
F9 prompts:-

```
Enter Password ->
```

type in password level required 'xxxxxxxx' followed by 'enter'. A correct entry prompts

```
*** Password Accepted ***
```

an incorrect entry prompts

```
*** Password Not Accepted ***
```

Password entry is automatically removed after 90 minutes but may also be removed by selecting F9 and pressing Enter.

The password settings on leaving the factory are:-

'USER'.   Level 1 *User*
'Contractor   .   Level 2 *Master*

The password may be changed by selecting F10 System Configuration Menu and then selecting F2 Change User Password .(See configuration section page .)
F10 only displays the System Configuration Menu provided the correct password has been entered previously.

System Configuration Menu F10

Main Menu F10 displays the System Configuration Menu provided the correct   password has been entered.

This menu enables exit and backup from the system to DOS and time and date changes.

```
================[Microm Electronics - Guardian AutoGraph Terminal v5.1b]==========P
 |   |                                                                          |   |
 |   |                         09:12:52 Mon Apr 28 1997                         |   |
 |   |                                                                          |   |
 |   |                      [SYSTEM CONFIGURATION MENU]                         |   |
 |   |                      F1   -   Site Name                                  |   |
 |   |                      F2   -   Change User Password                       |   |
 |   |                      F3   -   Configure Options                          |   |
 |   |                      F4   -   Configure Printer                          |   |
 |   |                      F5   -   Configure Highway                          |   |
 |   |                      F6   -   Backup & Exit to DOS                       |   |
 |   |                      F7   -   Comms Settings                             |   |
 |   |                      F8   -   Time & Date                                |   |
 |   |                      F9   -   Commissioning Menu                         |   |
 |   |                      F10  -   Return to Main Menu                        |   |
 |   |                                                                          |   |
 |   |                                                                          |   |
 |   |                                                                          |   |
 |   |                                                                          |   |
 |   |                                                                          |   |
 |   |                                                                          |   |
 |   |                                                                          |   |
```

Site Name. F1   *see system Configuration page*

Change User Password F2   *see system Configuration page*

Configure Options. F3   *see system Configuration page*

Configure Printer. F4   *see system Configuration page*

Configure Highway. F5   *see system Configuration page*

Backup & Exit to DOS F6.

System Menu F6 causes the following prompt to be displayed:-

```
 |   Do you really want to exit this program [Y/N] ?   |
```

IIf 'Y' for yes is pressed then all current data selections are saved to hard disc, the GUARDIAN Autograph program is stopped and the PC is left in DOS.

IT IS IMPORTAN THAT ANY SYSTEM CONFIGURATION CHANGES ARE FOLLOWED BY USING F6, OTHERWISE A POWER LOSS TO THE PC WILL RESULT IN DEFAULT SETTINGS BEING USED ON RESTART.

(or see configuration section page).

Comms Settings. F7   *see system Configuration page*

Time & Date. F8

System Menu F8 - when pressed displays pop-up window with TIME and DATE settings, right arrow -> is used to select time/date item for change. ESC ignores any entries and returns to System Configuration Menu. Enter sets new time and date and updates all Guardian units.

```
╔═════════════[Set Time and Date]═══════════╗
║                                            ║
║    New Time : 09:31:00                      ║
║                                            ║
║    New Date : 01/05/1997                    ║
║                                            ║
║  [Return] = set, [ESC] = no change          ║
║                                            ║
╚════════════════════════════════════════════╝
```

******** **THIS COMMAND MAY BE USED TO SYNCHRONISE TIME AND DATE**
OF ALL GUARDIAN UNITS ON THE RS485 HIGHWAY *****

Commissioning Menu. F9   *see system Configuration page*

Return to Main Menu F10.

System Menu F10 - when pressed returns to MAIN MENU display.

SYSTEM   CONFIGURATION (Supervisor)

This section of the OPERATION & SETUP MANUAL is intended as a guide for the engineer responsible for the overall control and monitoring system specification and implementation.

It describes the functions available for configuring the GUARDIAN AUTOGRAPH system to match the refrigeration configuration being controlled, the different Guardian refrigeration controllers being used, the alarm and data monitoring required and the PC hardware facilities available.

Most of the functions described in the following section are actually available under the *master* password but the description of these functions has been left until this section so as not to confuse the inexperienced service mechanic who will seldom require any of it.
Since most of the functions have a dramatic effect on system performance if configured incorrectly, leaving these functions until this section also allows the possibility of issuing the **AUTOGRAPH** OPERATION & SETUP MANUAL for general service release without the SYSTEM CONFIGURATION section if it is felt that a little knowledge could be a dangerous thing.
Similarly It is envisaged that supermarket staff and management only receive up to the end of the OPERATION section which contains the *user* password

The functions described include system configuration using the *master* password including:.

- Editing and archiving of Store Name, Temperature, Graph and Compressor display formats,
- The correct standard Compressor configuration file to match the controller and the compressors
- 'Zones' for alarm monitoring R404A Gas levels , 'stub' temperatures and motor control parameters.
- RS485 highway addresses scanning and diagnosis
- Printer and RS4845 communication port being used on the PC
- master and user passwords
-

 If also includes using the supervisor password for configuration of

- System program facilities to be activated
- the descriptive textfiles and menus being used at the different password levels
- overriding master and user passwords if they have been inadvertently changed

Editing and archiving

F1 Edit is available on most pages of the AGT . On all the pages that it does occur its function are identical and pressing F1 displays:

```
===============[Edit]===============
F1   Find...
F2   Insert (and move down)
F3   Delete (and move up)
F4   Reset
F5   Copy to...
F6   Archive...
F7   Print Current
F8   Print All
```

FIND F1

This generally asks for an item number to be entered,(eg stub number 1 to 80), and then displays the item highlighted. It is mainly used to save time instead of repeatedly using F9 Nextpage when the item number is known.

INSERT F2

Inserts a default setup of the required type,(stub or compr),at the point highlighted. So if compressor item 6 is highlighted then a default compressor setup is inserted at the position of compressor item 6 and what was compressor item 6 becomes compressor item 7. Any subsequent compressors are also moved down. The address and name information is unchanged.

DELETE F3

Deletes the highlighted item. All subsequent items are moved up by one. i.e. if compressor 6 is highlighted and F3 Delete selected then compressor 7 becomes compressor 6 etc. The address and name information is unchanged.
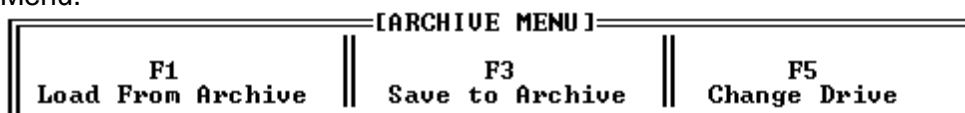
RESET F4.

Sets the highlighted item back to the default state. This will generally remove any address information.

COPY TO F5

Copies the highlighted item to the item specified. This is useful when a number of systems have identical settings. Once copied the address and name information need only be changed.

ARCHIVE F6

This is a facility for saving a database under a relevant name. Also when used it saves all the current settings for compressors ,stubs, zones and graphs to disc and may be used to perform a backup of the system instead of using F6 on the System Configuration Menu.

```
═══════════════════[ARCHIVE MENU]═══════════════════
║           F1        ║         F3        ║           F5        ║
║    Load From Archive ║   Save to Archive ║     Change Drive    ║
```

Selecting F3 'Save to Archive' on the compressor overview , for example, would save all 15 compressor items, their setpoints, alarm limits, address information etc to disc with the chosen file name. This function on the other overview pages, store temperatures, graphs and zones, enables each section to be saved .When the sections are saved they are given different file extensions by the AGT so that the file name may be common to all e.g.

sitename.ach	is a store temperatures archive file
sitename.acg	is a graphs archive file.
sitename.acc	is a compressors archive file
sitename.acz	is a zones archive file

The user is required to supply the file name only and this must be a maximum of 8 characters.

These files may then be used to recover a system by using F1 'Load From Archive. For each overview page that Load From Archive is selected from a list is displayed of all the archive files on disc with the correct file extension for that section. The cursor control arrows are used to select the file for loading.

Compressor configuration

F7 Configure is found on the Compressor Overview ,(F5 from the main menu).
It enables selection of standard compressor formats supplied with the AGT software.
(If a compressor rack controller is being used, also see section on Zones on page .)
Use the cursor control keys to highlight the compressor to be configured, pressing F7 gives:

```
============[UNIT FORMATS LOAD/SAVE]============
┌─────────────────╥─────────────────╥─────────────────┐
│       F1        ║       F3        ║       F5        │
│ Load Unit Format║ Save Unit Format║  Change Drive   │
└─────────────────╨─────────────────╨─────────────────┘
```

The default drive is the PC hard drive 'C'. Pressing F1 then lists all the available configurations on the selected drive.

```
Í─────────────────A
║ C2LF_G2.ACF     ║
║ C2LFLP2.ACF     ║
║ HVAC20.ACF      ║
║ RCC_6PAC.ACF    ║
║ RCC_3PAC.ACF    ║
║ RC20_1LT.ACF    ║
║ RC20_1HT.ACF    ║
║ RCCM4SAT.ACF    ║
║ CPC-C4F5.ACF    ║
║ IPCMIUC.ACF     ║
║ IPCMOCUF.ACF    ║
║↓IPCMGPC.ACF     ║
É─────────────────C
```

Use the cursor control arrows to move the highlight bar to the configuration required. Pressing the Enter key selects the configuration. The Agt then prompts for the address of the compressor controller.

```
┌──────────────────────────────────────────┐
║  Enter first address for compressor ->    ║
└──────────────────────────────────────────┘
```

This must be the value of the 'A' parameter found under 'Unit' menu for the controller. Next the compressor name prompt is displayed:

```
┌──────────────────────────────────────────┐
║  Enter compressor name ->Rack C           ║
└──────────────────────────────────────────┘
```

Use any keyboard characters to produce a suitable 16 character name.

These actions result in several pre-defined elements being set-up for the selected compressor.

1. The details page will display all of the input and output signals associated with the type of compressor selected.
2. The set-points page will have relevant set-points for the type of compressor with default values.
3. The limits pages will list all the alarms available with default values.

All of the limits and set-points displayed by the PC will require transferring to the compressor controller. (See Transfer on page .).

The displays associated with the compressor configuration are all re-configurable so may be further customised and then saved under a different configuration name.

DETAILS F2

The page is organised into 8 rows with a descriptive item and four data items with headings, for each row. The cursor control arrows are used to highlight the row to be configured, which is then selected by pressing F7.

```
══════════════[Configure Points Displayed]══════════

   Description :    PRESSURES bar g

                 Address    Point       Heading

   display 1        3         1         SUCTION
   display 2        3         2         DISCHARGE
   display 3        3         3          C1 OIL
   display 4        3         4          C2 OIL
```

The cursor control arrows are used to move the highlight bar to the field to be changed.
The Description is a 16 character entry relating to the rows contents.
 The data to be display, upto 4 items, is specified by entering a highway address and a point number,(1 to 9), or letter,(A to H). Each point may also given a heading, which will appear above the point value/state on the details display.
The address is obtained by using function F8,'Setup' and the point information by using F6 'Limits'.
        When the changes that are required are completed it is then possible to save the changes under a different format name using Configure F7 on the overview display and selecting F3 save unit format. This saves changes made to details page, set-points page and limits pages.

SET-POINTS F4

        Up to 16 set-points are available for a compressor controller. To change the description of a set-point or the min/max limits associated with it, F6 on the setpoints page is used. First use the cursor control arrows to highlight the set-point to be changed then press F6:

```
═════════════════[Compressor Setpoints (Microm)]═══════════

   Name  :  Suction Setpoint    Max  :     5.0
   Value :     2.3              Min  :    -0.5
```

Use the cursor control arrows to highlight the item to be changed.
        When the changes that are required are completed it is then possible to save the changes under a different format name using Configure F7 on the overview display and selecting F3 save unit format. This saves changes made to details page, set-points page and limits pages.

LIMITS F6

A maximum of 3 pages of alarm limits are available for a compressor format. The page is divided into analogue and digital sections. The cursor control arrows are used to move the highlight bar to the limit to be changed. Pressing F6 on the limits display page for an analogue value gives :

```
=========================[Compressor Alarm]=========================

    Point name :     suction press

                        Alarm      Max      Min      Display
                        Value      Value    Value    1=ON/0=OFF

              LowAlarm:   -0.2       5.0     -0.5        1
              HiAlarm:    10.0      20.0      0.0        1
              LowTrip:    -0.5       5.0     -0.5        1
              HighTrip:   10.0      20.0      0.0        1
```

Use the cursor control arrows to highlight the item to be changed.
For a digital limit pressing F6 gives:

```
[Types and Modes]
Types

   0 = analogue
   8 = on  /off
   9 = run /stop
  10 = open/shut
  11 = defr/
  12 = open/
  13 = trip/
  14 = high/
  15 = shut/open
  16 = low/
  17 =     /trip
Modes

   0 = high/on
   1 = low /off
   2 = high/low
   3 = none
```

```
==================[Compressor Trip]==================

    Input name   :   Condenser Fans

    Alarm Type   :   13
    Alarm Mode   :    0
    Guard Time   :    0

    Output name  :   Motor 2
```

Use the cursor control arrows to highlight the item to be changed.

When the changes that are required are completed it is then possible to save the changes under a different format name using Configure F7 on the overview display and selecting F3 save unit format. This saves changes made to details page, set-points page and limits pages.

'Zones' for alarm monitoring

F6 main menu gives access to a page of alarm settings for analogue and digital inputs.

```
===========[Microm Electronics - Guardian AutoGraph Terminal v5.0f]==========A
     Fremantle            ZONE ALARM LIMITS          23:34:40 Mon Apr 28 1997
1z Rack-d
     Point_____Value_ALARM__Type_Mode__Setpoint_Diff/Dial__Guard(m)_
Temp.1 Compr No.          2.0           0    3     0.0      0.0          0
     2                    n/f           0    3     0.0      0.0          0
     3 Capacity         100.0           0    0     0.0      0.0          0
     4                                  0    0     0.0      0.0          0
     5 Hours Run         1520           0    0     0.0      0.0          0
     6 Wait timer        26.0           0    0   100.0      0.0          0
     7                    0.0           0    0     0.0      0.0          0
     8                   11.6           0    0    11.6     11.6          0
     9 Motor Mode      Remote           0    0     0.0      0.0          0
InputA                   off           0    3                           0
     B H.P.Safety        off           0    3                           0
     C Oil diff Safety   off           0    3                           0
     D                   off           0    3                           0
     E Overload Safety   off           0    3                           0
     F Overheat Safety   off           0    3                           0
     G                   off           0    3                           0
     H                   off           0    3                           0

  F1        F2          F3         F4                         F9         F10
 Edit    Transfer    Name/Addr   Setup                     Next Page    Done
```

The above display shows a typical application for zone alarm monitoring. Even though a compressor configuration is available for the rack controller it only provides alarm limits for the rack parameters. To enable each compressor in a rack to have individual alarms and also display additional information a zone is used. It is possible that a suitable archive for the compressor type already exists so check Archive under F1 Edit (See page for more details about archive files). If an archive file is available then the only further requirement is to set the correct address for the compressor as described in the next paragraph.

To set-up the zone the address of compressor must be known,(this is generally the rack address + 2 + compressor number. See manual of controller for details).
F3 is then used to allocate the address and name for the compressor.
Using the cursor control arrows to highlight the required input and pressing F4 gives:

```
===========[Microm Electronics - Guardian AutoGraph Terminal v5.1b]==========A
[Types and Modes]        ZONE ALARM LIMITS          17:31:02 Wed Apr 30 1997
Types
                       __Value_ALARM__Type_Mode__Setpoint_Diff/Dial__Guard(m)_
   0 = analogue          -?-           0    0    -25.0      5.0         30
   8 = on  /off          -?-           0    0    -25.0      5.0         30
   9 = run /stop         -?-           0    0    -25.0      5.0         30
  10 = open/shut         -?-           0    0    -25.0      5.0         30
  11 = -OFF/ .           -?-           0    0    -25.0      5.0         30
  12 = open/             -?-           0    0    -25.0      5.0         30
  13 = trip/             -?-           0    0    -25.0      5.0         30
  14 = high/             -?-           0    0    -25.0      5.0         30
  15 = shut/open         -?-           0    0    -25.0      5.0         30
  16 = low/              of[Configure Alarm Point]               1
  17 =     /trip         of                                      1
Modes                    of    Point name :   discharge air     1
                         of                                      1
   0 = high/on           of    Type       :      0               1
   1 = low /off          of    Mode       :      0               1
   2 = high/low          of    Setpoint   :    -25.0             1
   3 = none              of    Diff/Dial  :      5.0             1
                               Guard Time :     30    (min)
  F1        F2          F3                                              F10
 Edit    Transfer    Name/Add                                          Done
```

This gives access to point name alarm limit and guard time. The limit for an analogue input is expressed in terms of a setpoint and differential. Provided the controller alarms for high and low limits then:

HIGH alarms are set-point + differential

 LOW alarms are set-point - differential

 Both limits must be exceeded for more than the guard time before the alarm will occur.(See details on zones in Setup section page).

System Configuration Menu F10

Main Menu F10 displays the System Configuration Menu provided the correct   password has been entered.

This menu enables exit and backup from the system to DOS and time and date changes.

```
================[Microm Electronics - Guardian AutoGraph Terminal v5.1b]===========P
|                                                                                   |
|                         ┌──────────────────────────────┐                          |
|                         │  09:12:52 Mon Apr 28 1997     │                          |
|                         └──────────────────────────────┘                          |
|                                                                                   |
|                            [SYSTEM CONFIGURATION MENU]                            |
|                            F1  -    Site Name                                      |
|                            F2  -    Change User Password                           |
|                            F3  -    Configure Options                              |
|                            F4  -    Configure Printer                              |
|                            F5  -    Configure Highway                              |
|                            F6  -    Backup & Exit to DOS                           |
|                            F7  -    Comms Settings                                 |
|                            F8  -    Time & Date                                    |
|                            F9  -    Commissioning Menu                             |
|                            F10 -    Return to Main Menu                            |
|                                                                                   |
|                                                                                   |
|                                                                                   |
|                                                                                   |
|_____|
```

Site Name. F1

System Menu F1 - when pressed allows the 20 character Site Name to be changed. A beep tone is given when more than 20 characters are entered. Backspace is used to delete unwanted characters.

```
╔═══════════════════════════════════════════════════════════╗
║   Enter New Site Name ->Any Supermarket                    ║
╚═══════════════════════════════════════════════════════════╝
```

Change User Password F2

System Menu F2 when pressed allows the 20 character User Passwords to be changed, (The default passwords are 'USER' and 'MASTER'). A beep tone is given when more than 20 characters are entered. Backspace is used to delete unwanted characters.

The master password is presented first for change followed by the user password.

```
╔═══════════════════════════════════════════════════════════╗
║   Enter New Master Password ->master                       ║
╚═══════════════════════════════════════════════════════════╝
```

Configure Options. F3
System Menu F3 is a system utility, it not available under the Master Password.
(see configuration section page .)

Configure Printer. F4

System Menu F4 allows selection of colour or monochrome printing, provided printer has a colour ribbon. Use cursor control arrows to move highlight bar, then press 'Enter' to select.

```
====[Select Printer Type...]====
        Monochrome Printer
        Colour Printer
```

Configure Highway. F5

System Menu F5 allows three selections:-

```
=======[Configure Highway]=======
        Scan All Addresses
        Add New Addresses
        Setup as Database
```

Use the cursor control keys to move the highlight bar to the required selection.
Scan All Addresses
********* **IN ACTIVE MODE THIS COMMAND ADDRESS ALL UNITS**

Add new Addresses
********* **THIS SHOULD BE USED IF A NEW UNIT HAS**
BEEN CONNECTED TO THE RS485 HIGHWAY.
Setup as Database
Assumes   that all undeleted addresses programmed in   the database are valid and generates communication alarms if any are not present.

Comms Settings. F7

System Menu F7 - when pressed displays pop-up window with Communication selections. normal settings are

```
=======[Set Communications Parameters]=======

    Comms Port    : 2

    Baud Rate     : 9600
    Parity        : 0 (0:None 1:Odd 2:Even)
    Stop Bits     : 2
    Data Bits     : 8

    Listen Time   :   5
    Poll Timeout  :  30 (1/100 sec)
    Message Delay:    5 (1/100 sec)

    [Return] = set, [ESC] = no change
```

Using the cursor control arrows enables each parameter to be highlighted and changed if required.
Comms Port: This designates the serial port on the PC to be used by the Autograph package.(Usually 1 or 2)
Baud Rate:9600

Parity   :none
Stop bits:2
Data Bits:8   All Guardian units have these settings as defaults and so they should not require changing.
Listen time is time delay waiting for a standard transmission prior to Autograph PC commencing active communication mode. It is used when two PC's are being used on the same highway. The listening PC normally has a listen time of 40.

SYSTEM COMMISSIONING MENUS

Commissioning Menu. F9

System Menu F9 when pressed gives access to functions to assist commissioning of the Guardian Autograph Terminal(AGT) and System.

The commissioning menu is accessed by pressing F10 from the main menu then F9 from the System menu.

Under the Commissioning Menu are several diagnostic displays which may be useful if problems are encountered with communications. Also a function is provided for use with the AGT alarm panel dial-out functions.

```
════════[Microm Electronics - Guardian AutoGraph Terminal v5.1b]════════
                        ┌─────────────────────────┐
                        │ 09:03:52 Mon Apr 28 1997 │
                        └─────────────────────────┘

                          [SYSTEM COMMISSIONING MENU]


                  F4  -   Address Configuration
                  F5  -   Comms Status

                  F7  -   Comms Diagnostics
                  F8  -   Dialout Functions

                  F10 -   Return to Configuration Menu


              Press a function key F1-F10 to select option...
```

Address Allocation F4

Commissioning Menu F4 displays what type of unit is allocated to which address:

```
═══════════[Microm Electronics - Guardian AutoGraph Terminal v5.1b]═══════════P
Any Supermarket             ADDRESS ALLOCATION          09:10:14 Mon Apr 28 1997
 Address          Controller Type
     1  Unused Address
     2  Unused Address
     3  Refrigeration Stub 1-Case 1
     4  Refrigeration Stub 1-Case 2
     5  Refrigeration Stub 1-Case 3
     6  Refrigeration Stub 2-Case 1
     7  Refrigeration Stub 2-Case 2
     8  Refrigeration Stub 2-Case 3
     9  Refrigeration Stub 3-Case 1
    10  Refrigeration Stub 3-Case 2
    11  Refrigeration Stub 3-Case 3
    12  Refrigeration Stub 4-Case 1
    13  Refrigeration Stub 4-Case 2
    14  Refrigeration Stub 4-Case 3
    15  Refrigeration Stub 5-Case 1
    16  Refrigeration Stub 5-Case 2


     F1                                                    F9         F10
Find Address                                          Next Page     Done
```

The Autograph package has default settings, allocating 80 stub type displays of three addresses per stub.

When other types of display are allocated an address they may clash with these default settings The stub at which the address clash occurs must be deleted. (See Configuration section page).

```
════════════[Microm Electronics - Guardian AutoGraph Terminal v5.1b]════════════P
Any Supermarket              ADDRESS ALLOCATION          09:09:49 Mon Apr 28 1997
__Address_____Controller Type__
  225  Compressor 6-Format 1                      *** Warning - Address Clash!
  226  Compressor 6-Format 2                      *** Warning - Address Clash!
  227  Compressor 6-Format 3                      *** Warning - Address Clash!
  228  Compressor 7-Format 1                      *** Warning - Address Clash!
  229  Compressor 7-Format 2                      *** Warning - Address Clash!
  230  Compressor 7-Format 3                      *** Warning - Address Clash!
  231  Compressor 8-Format 1                      *** Warning - Address Clash!
  232  Compressor 8-Format 2                      *** Warning - Address Clash!
  233  Compressor 8-Format 3                      *** Warning - Address Clash!
  234  Compressor 9-Format 1                      *** Warning - Address Clash!
  235  Compressor 9-Format 2                      *** Warning - Address Clash!
  236  Compressor 9-Format 3                      *** Warning - Address Clash!
  237  Compressor 10-Format 1                     *** Warning - Address Clash!
  238  Compressor 10-Format 2                     *** Warning - Address Clash!
  239  Compressor 10-Format 3                     *** Warning - Address Clash!
  240  Compressor 11-Format 1                     *** Warning - Address Clash!


    F1                                                     F9          F10
Find Address                                           Next Page      Done
```

In the above example Stub numbers 75 to 80 would have to be deleted to remove the warning messages.

Address Status. F5

Commissioning Menu F5 gives the following display:-

```
════════════[Microm Electronics - Guardian AutoGraph Terminal v5.1b]════════════P
Any Supermarket                   COMMS STATUS            09:10:45 Mon Apr 28 1997
  1:0   23:0   45:0   67:0   89:0 111:0 133:0 155:0 177:0 199:0 221:0 243:0
  2:2   24:0   46:0   68:0   90:0 112:0 134:0 156:0 178:0 200:0 222:0 244:0
  3:2   25:0   47:0   69:0   91:0 113:0 135:0 157:0 179:0 201:0 223:0 245:0
  4:2   26:0   48:0   70:0   92:0 114:0 136:0 158:0 180:0 202:0 224:0 246:0
  5:0   27:0   49:0   71:0   93:0 115:0 137:0 159:0 181:0 203:0 225:0 247:0
  6:1   28:0   50:0   72:0   94:0 116:0 138:0 160:0 182:0 204:0 226:0 248:0
  7:1   29:0   51:0   73:0   95:0 117:0 139:0 161:0 183:0 205:0 227:0 249:0
  8:0   30:0   52:0   74:0   96:0 118:0 140:0 162:0 184:0 206:0 228:0 250:0
  9:0   31:0   53:0   75:0   97:0 119:0 141:0 163:0 185:0 207:0 229:0 251:0
 10:3   32:0   54:0   76:0   98:0 120:0 142:0 164:0 186:0 208:0 230:0 252:0
 11:9   33:0   55:0   77:0   99:0 121:0 143:0 165:0 187:0 209:0 231:0 253:0
 12:0   34:0   56:0   78:0  100:0 122:0 144:0 166:0 188:0 210:0 232:0 254:0
 13:0   35:0   57:0   79:0  101:0 123:0 145:0 167:0 189:0 211:0 233:0
 14:0   36:0   58:0   80:0  102:0 124:0 146:0 168:0 190:0 212:0 234:0
 15:0   37:0   59:0   81:0  103:0 125:0 147:0 169:0 191:0 213:0 235:0
 16:0   38:0   60:0   82:0  104:0 126:0 148:0 170:0 192:0 214:0 236:0
 17:0   39:0   61:0   83:0  105:0 127:0 149:0 171:0 193:0 215:0 237:0
 18:0   40:0   62:0   84:0  106:0 128:0 150:0 172:0 194:0 216:0 238:0
 19:0   41:0   63:0   85:0  107:0 129:0 151:0 173:0 195:0 217:0 239:0
 20:0   42:0   64:0   86:0  108:0 130:0 152:0 174:0 196:0 218:0 240:0
 21:0   43:0   65:0   87:0  109:0 131:0 153:0 175:0 197:0 219:0 241:0
 22:0   44:0   66:0   88:0  110:0 132:0 154:0 176:0 198:0 220:0 242:0
```

The number to the left of the colon is the address and the number to the right is the status. The status is in the range of 0 - 9 and has the following meaning:-

0 - Unused address.

1 - Waiting to be scanned by the autograph package. A one is set for status after a Configure Highway command.(See System Configuration Menu F5).

2 - The Autograph system has received a valid response from the unit at this address.

3 to 9 - After a valid response has been received then any failures will increment the status count. If seven successive failures are obtained, (i.e. status=9), then a communications alarm is generated for that address.

Every time a valid response is received then the status is set to 2.

* * * AFTER A COMMUNICATIONS ALARM HAS BEEN DETECTED, * * *
THE PC MUST EXIT TO DOS AND BE RESTARTED BEFORE THE
FAILED UNIT WILL GENERATE ANOTHER COMMS ALARM .

Comms Diagnostic F7.

Commissioning Menu F7 gives the following display:-

```
=============[Microm Electronics - Guardian AutoGraph Terminal v5.1b]=============P
 Any Supermarket                 COMMS DIAGNOSTIC              09:11:18 Mon Apr 28 1997

           Monitor Unit Address:            0

  Last Command   :      00 00 00 00 00
  Last Reply     :      00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
  Last Bad Reply:       00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
  Data Type      :
  Reply Time (1/100 sec):       0
  Comms Status   :            Unused Address
  Last Failure   :            OK
  Total Messages:       0  Total Errors:    0  Percent Failure Rate:    0.00


           ------Communications Port Hardware Status------
  Receiver     Parity      Framing       Break
  Overrun      Error        Error       Detected       CTS         DSR         DCD
 ================================================================================
      0           0           0           0           0           0           0


     F1                                                                        F10
 Set Address                                                                   Done
```

Set Address

F1 may be used to select an address which requires to be monitored, i.e. is causing comms alarms.
First check the lower section of the display,Communications Port Hardware Status. For a healthy condition all the values should be zero. A one in Receiver Overrun, Parity Error or Framing Error would indicate a problem with the communications
settings, (check Comms Settings F7 on page), or possible fault with the serial link hardware.
A one for CTS, DSR or DCD indicates a problem with
the serial link hardware, i.e. the card in the PC used for communications.
Next check the percentage failure rate. If the
rate is 100%, i.e. no responses after Total messages > 5, then check :-

      1. The unit has the correct address.

      2. It has been connected correctly to the highway.

      3. The unit is powered on.

If the failures are intermittent then check:-

      1. The time taken for a successful reply is 2 to 3 hundredths of a second less than the poll timeout set under F7.

      2. Check for address clashes F4.

      3. Check RS485 Highway connections and ensure correct termination of highway has been completed.

Dial-Out Functions F8

Commissioning menu F8 gives access to set-up functions associated with an AGT alarm panel.

```
╔══════════[Microm Electronics - Guardian AutoGraph Terminal v5.1b]══════════P
║  ┌──────────────────────[Dial-Out Functions]──────────────────────┐         ║
║  │                                                                 │         ║
║  │   Bleeper Number  :                                             │         ║
║  │   Remote PC Number:                                             │         ║
║  │   AutoDial (secs) :   020                                       │         ║
║  │              Active Times                                       │         ║
║  │           TeleDialler    Remote Beacon                          │         ║
║  │          Before  After  Before   After                         │         ║
║  │   Mon-Fri 0700    2000    0000    0000                          │         ║
║  │   Sat     0700    2000    0000    0000                          │         ║
║  │   Sun     0800    1600    0000    0000                          │         ║
║  │             Dialout Mode                                        │         ║
║  │    0=NO, 1=YES, 2=REPEAT(90mins)                                │         ║
║  │     Analogues          Digital Fails                           │         ║
║  │   High  Low   Trip  Stubs Comprs Comms                         │         ║
║  │    2     1     2      1     2      0           │ion...          │         ║
║  │                                                                 │         ║
║  └─────────────────────────────────────────────────────────────────┘        ║
║                                                                              ║
╚══════════════════════════════════════════════════════════════════════════════╝
```

The cursor keys are used to move the highlight bar to the required parameter.
Bleeper Number and Remote PC Number are not yet implimented.

AutoDial is the timer for the tele-dialler relay. It is the time in seconds that the relay is pulsed to start an external telephone dialler system.(see alarm relay timing diagram on page)

Active Times defines the times that the tele-dialler and remote alarm beacon relays are activated in.

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