Huntleigh
HEALTHCARE

IR Interface

User Manual

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SAFETY WARNING

Do not communicate with a pump connected to a mattress, using the IR Interface, if there is a patient on the mattress.

1. Introduction

About this Manual

This manual is your introduction to the **IR Interface**. Use it initially to set up the system, and keep it handy as a reference for day-to-day servicing routines.

About the IR Interface

The **IR Interface** module, when connected to a Personal Computer (PC), enables the PC to communicate with the pump being serviced or repaired, to monitor and control various functions within the pump.

The **IRRemote** software is installed and run on the PC. The software sets up a Windows Graphical User Interface (GUI) on the PC**,** and the different menus and tabs provide full user control of the pump via the **IR Interface** module.

The **IR Interface** module is powered by two internal batteries, and connected to the RS232 communications port on the PC. The module can be attached to the open lid of a laptop PC, or freestanding on any flat surface.

The **IR Interface** module uses infrared as the data transmission medium to and from the pump.

2. Product Description

IR Interface Module

The **IR Interface** module consists of a black plastic enclosure with a cable at the bottom to connect to the RS232 communications port on the PC.

The **IR Interface** module uses infrared as the data transmission medium to and from the pump. On the front of the **IR Interface** module is a clear plastic window, behind which is the infrared transmitter and receiver. Similarly, on the front of the pump there is a small clear plastic window with an infrared transmitter and receiver behind it.

The **IR Interface** module is powered by two internal "AA" batteries, which are easily replaceable.

The **IR Interface** module is supplied with a mechanical fixing kit, to enable the module to be attached to the open lid of a laptop PC, or free standing on any flat surface.

IRRemote Software

The **IRRemote** software is installed onto the PC from two 3.5 in. floppy disks. Once installed and run, the software sets up a Windows Graphical User Interface, with the following menus and tabs displayed:

- **Connection**. This enables the user to select the pump type.
- **Settings**. This enables the user to change the COM port options, and infrared communication baud rate and interface type.
- **Information**. This displays the serial numbers of the pump and its PCB, various hours logged and an alarms history.
- **Service**. This enables the user to reset the service meter, log service hours, reset all alarms, set the maintenance time, perform LED and sound tests, and charge the battery on the pump PCB.
- **Test**. This displays the status of the compressor coils, sensors and rotary valve. It also enables the user to perform inproc, dynamic and static tests.
- **Production**. This enables the user to set a new pump serial number and perform a checksum test on the ROM on the pump PCB.

- **Engineering**. This enables the user to write to and read from the EEPROM on the pump PCB.

The Service, Test, Production and Engineering tabs are password protected. In normal operation, each tab will have a unique password to enable different users to only access certain tabs.

3. Installation and Setup

Warning

Any computer equipment connected to the IR Interface should comply with Standards EN60950 (Safety of Information Technology Equipment) and EN50082 (Electromagnetic Compatibility).

Contents of Pouch

The **IR Interface** is supplied in a pouch. Undo the pouch and check that you have the following items:

- One **IR Interface** module.
- Two **IRRemote** software installation disks (labelled "Disk 1 of 2" and "Disk 2 of 2").
- One **IR Interface** hook.
- A length of clear "Dual-Lock" reclosable fastener tape (a "Velcro"-type fastener).
- Two circular foam pads.

Selection of PC

The **IR Interface** will usually be connected to a laptop PC, but can be also connected to a desktop PC.

The PC must be running Microsoft Windows 95/98 Operating System as a minimum.

Battery Replacement

The **IR Interface** module is supplied with the internal batteries already installed.

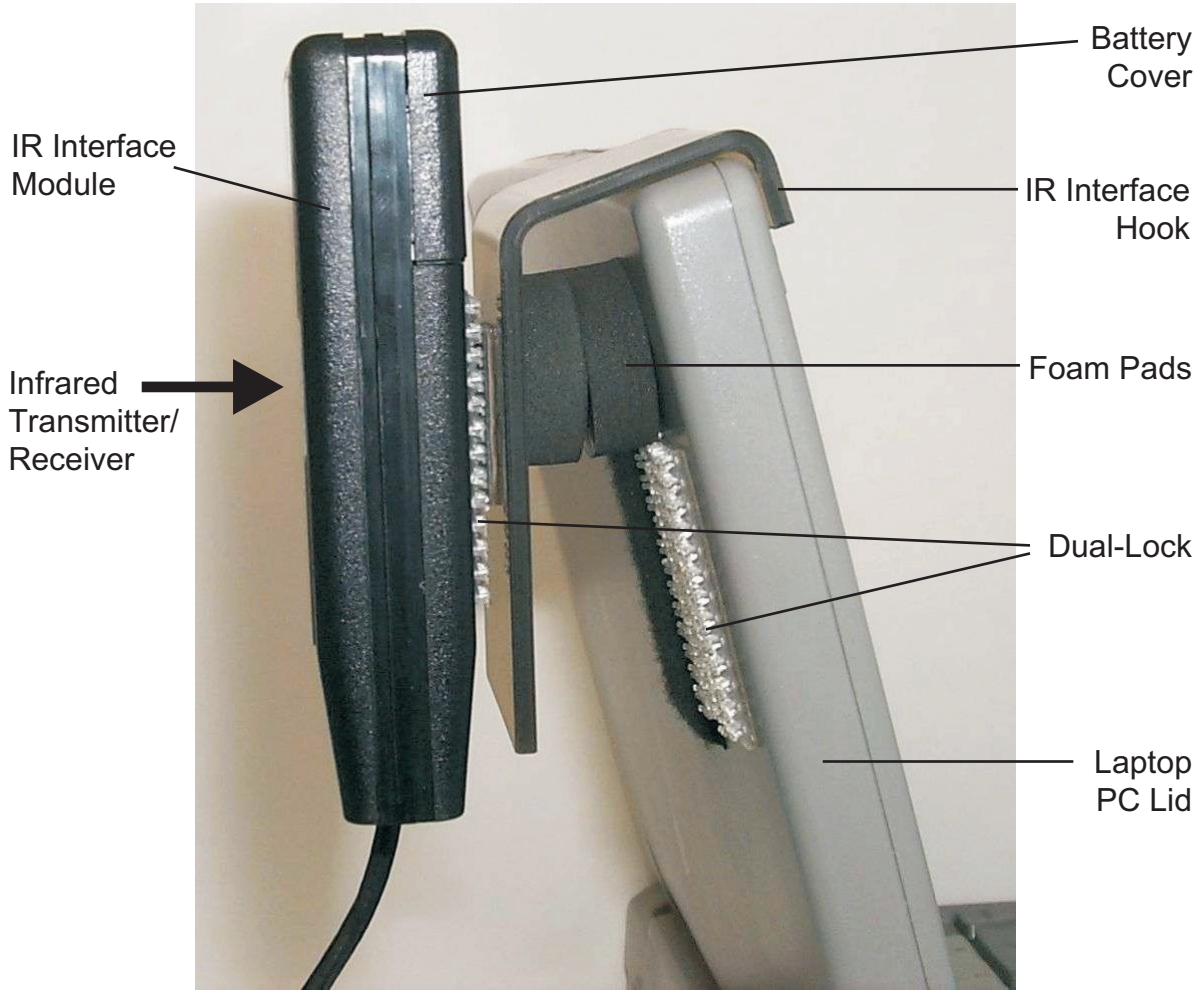
To replace the batteries, carry out the following procedure:

1. Remove the battery compartment cover on the back of the **IR Interface** module.
2. Remove the two old batteries.
3. Install the two new "AA" batteries into the battery compartment.

Check the polarity of the batteries to make sure they are installed correctly, as indicated on the label in the battery compartment.

4. Install the battery compartment cover.

Mechanical Attachment of the IR Interface Module



Attachment to the Lid of a Laptop PC using the IR Interface Hook

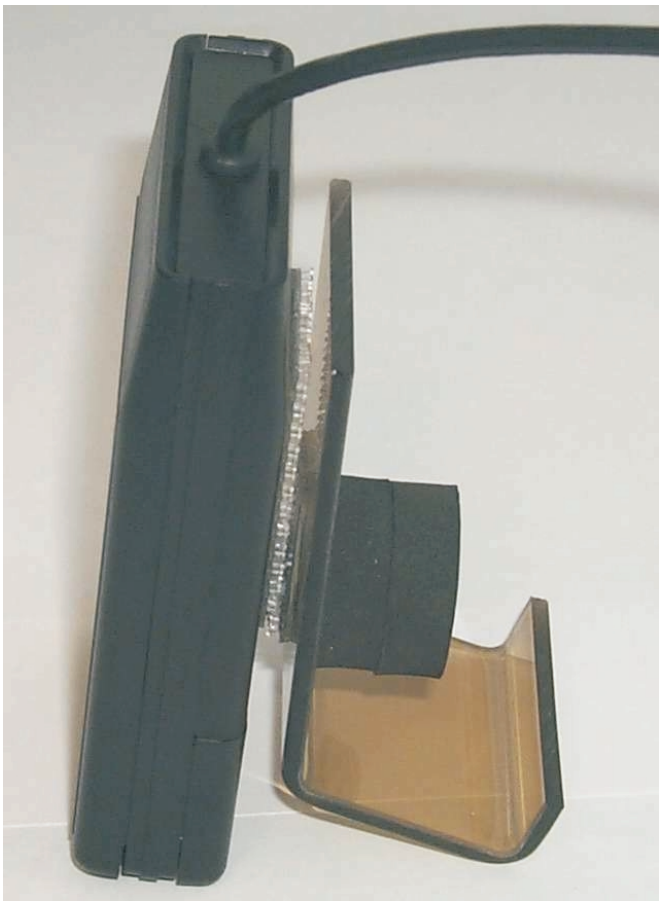
1. Cut off two pieces of Dual-Lock fastener approximately 25mm (1in.) square.
2. Remove the backing sheet off one piece of Dual-Lock fastener and stick it to the back of the **IR Interface** module.
3. Remove the backing tape off the other piece of Dual-Lock fastener and stick it to the long outer face of the **IR Interface** hook.
4. Attach the **IR Interface** hook to the **IR Interface** module using the Dual-Lock fastener.
5. The **IR Interface** module and hook assembly can now be attached to the top of the open lid of a laptop PC.
6. Remove the backing tape off the circular foam pads, and install them onto the **IR Interface** hook to achieve a tight fit on the laptop PC lid.

Attachment to the Lid of a Laptop PC without using the IR Interface Hook

1. Cut off a piece of Dual-Lock fastener approximately 25mm (1in.) square.
2. Remove the backing tape off the piece of Dual-Lock fastener and stick it to the lid of the laptop PC in the approximate position shown.
3. If necessary, cut off a piece of Dual-Lock fastener approximately 25mm (1in.) square, remove the backing tape and stick it to the **IR Interface** module in the approximate position shown.
4. Attach the **IR Interface** module directly to the laptop PC lid using the Dual-Lock fastener.

Freestanding IR Interface Module

1. Make sure the **IR Interface** hook is attached to the **IR Interface** module using the Dual-Lock fastener.
2. The **IR Interface** module and hook assembly can now be freestanding on a desk or any other flat surface.
3. Make sure the cable end of the **IR Interface** module is not resting on the desk.



Electrical Connection of the IR Interface Module

1. Connect the 9-way “D” type RS232 plug on the end of the **IR Interface** module cable to the serial port on the laptop PC.
2. Make sure the “D” type plug is tightened securely.

A bad connection will be indicated by the message “IR Module not connected or battery low” being displayed in red, in the top right corner of the dialog box, on the laptop PC, when the IRRemote software is running.

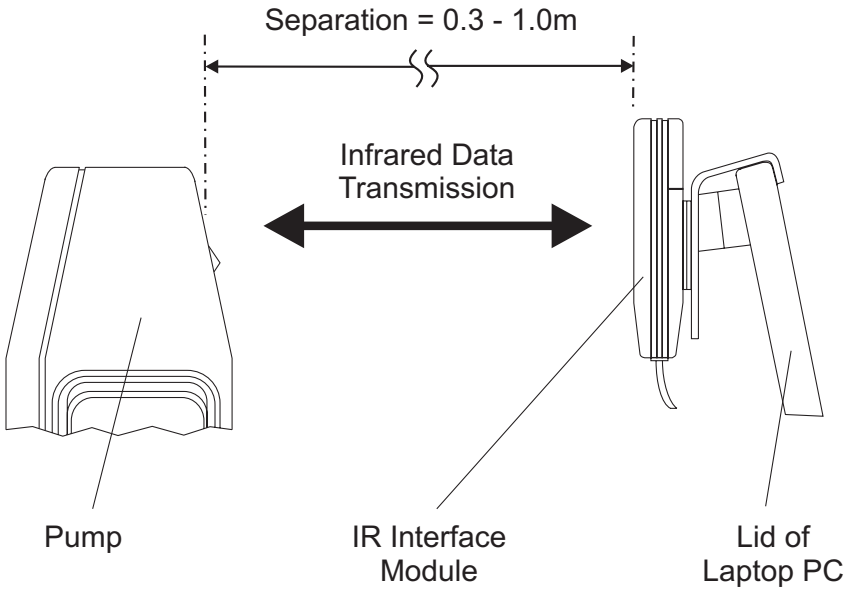
Installation of the IRRemote software

1. Close down any applications that are running on the PC before starting the installation of the **IRRemote** software.
2. Insert the **IRRemote** software installation disk labelled “Disk 1 of 2” into the 3.5 in. floppy disk drive on the PC.
3. On the PC, select “Start”, then “Run”.
4. Type “A:\Setup.exe”, then click “OK”, and follow the on-screen instructions displayed during the installation procedure.
5. When prompted, insert the second **IRRemote** software installation disk, labelled “Disk 2 of 2”, into the floppy disk drive.
6. When prompted, click on the “Install” button to install the **IRRemote** software to the suggested directory: “C:\Program Files\IRRemote\”
7. The installation is complete when the “IRRemote Setup was completed successfully” dialog box is displayed. Click “OK”, and remove disk 2 from the floppy disk drive.

Optimum Positioning of the IR Interface Module and Pump

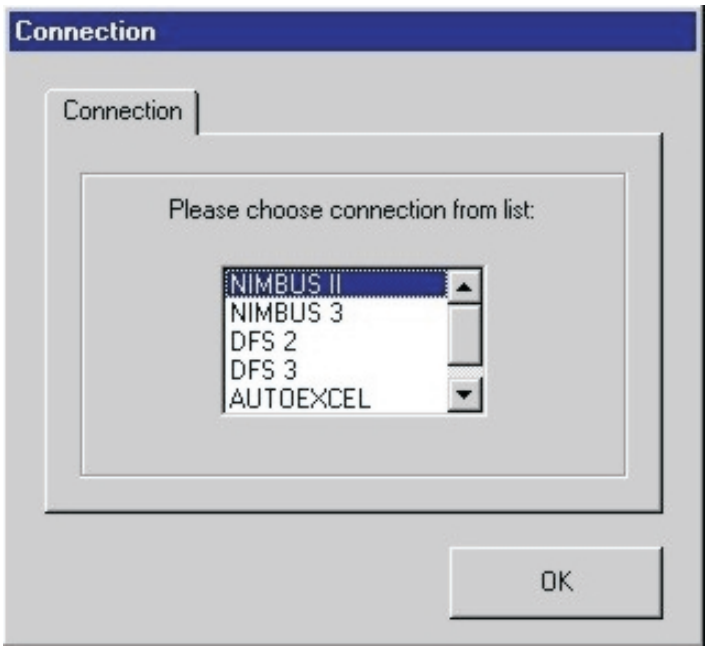
1. Place the **IR Interface** module in front of the pump, such that the small clear plastic window on the front of each unit (covering the infrared transmitter and receiver) face each other.
2. The distance between the two units should be approximately 0.3 - 1.0m (1-3 feet) for optimum infrared data transmission.
3. Make sure there is nothing obstructing the infrared data transmission path.

4. To enable the **IR Interface** and pump to communicate with each other, the pump should be in the upright position and the **IR Interface** module must be mounted vertically, with the connecting cable at the top or bottom. Do not use the **IR Interface** module on its side if the pump is in the upright position.



To Run the IRRemote Software

1. On the PC, select “Start” then “Programs” then “IRRemote”.
2. The “Information” tab is displayed by default, with the “Connection” menu superimposed over the top of it.



3. Select the pump to communicate with from the following list displayed in the dialog box, and then click “OK”:
   - NIMBUS II
   - NIMBUS 3
   - DFS 2
   - DFS 3
   - AUTOEXCEL
   - DFS HOMECARE

Select NIMBUS 3 if you have a PRONIMBUS pump.

4. If the pump selected is NIMBUS II, NIMBUS 3, DFS 2 or DFS 3, the following dialog box will be displayed:

Press the following two keys on the pump front panel, at the same time:

“STATIC” (or  on ProNimbus).

“MUTE” (or  on ProNimbus).

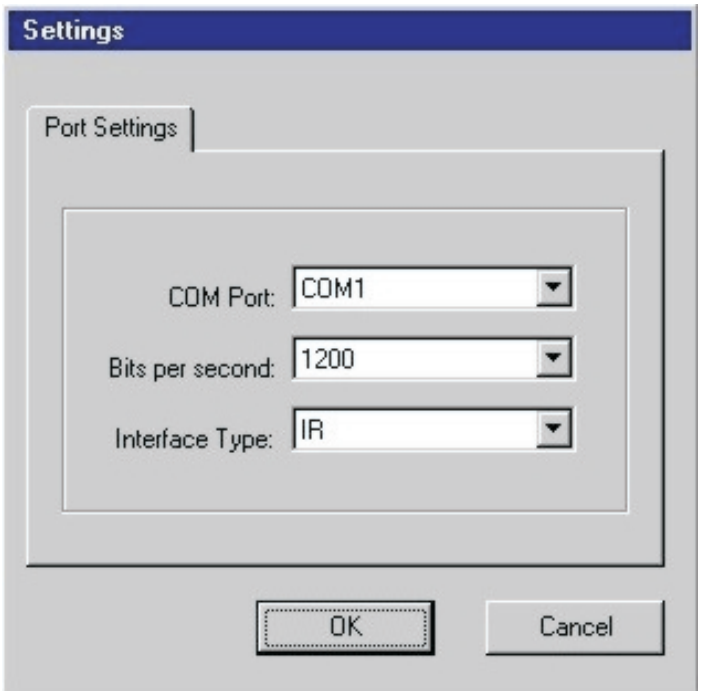
Then click “OK”.

5. If the pump selected is AUTOEXCEL or DFS HOMECARE, the following dialog box will be displayed:

   Press the "MUTE" key on the pump front panel, and hold it down for more than 3 seconds.

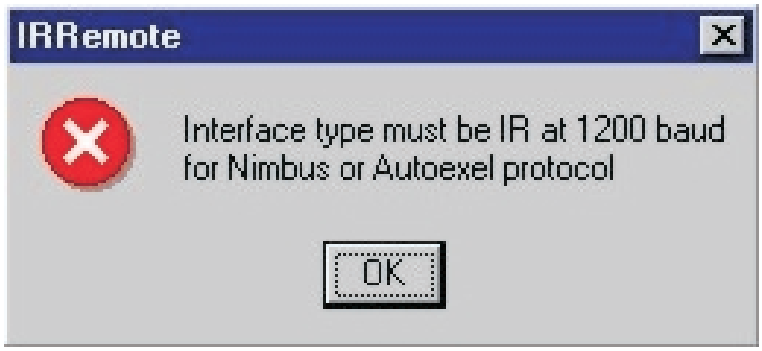
   Then click "OK".

6. To change the pump type, click on "Connection", and repeat paragraphs 3-5 above.
7. To check the COM port options, and infrared communication baud rate and interface type, click on "Settings" then "Com Port". The "Port Settings" dialog box will be displayed:

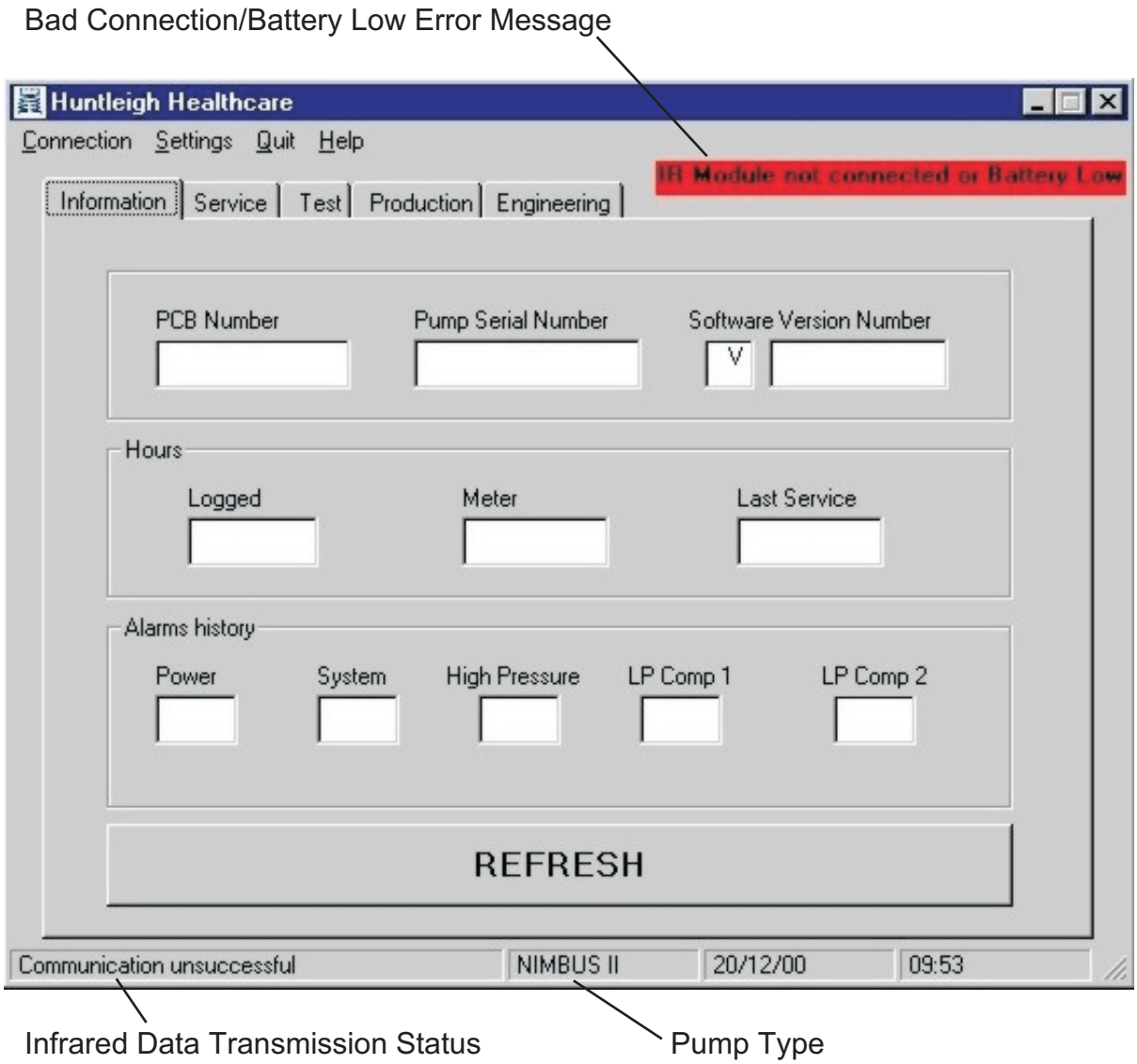


   - COM Port: This should be automatically sensed by the **IRRemote** software.
   - Bits per second: This must be set to "1200".
   - Interface Type: This must be set to "IR".
   - Click "OK" or "Cancel" to return to the "Information" tab.

- If either the “Bits per second” and/or “Interface Type” are set to any other values, the following error message is displayed:



8. The “Information” tab is now shown. You must click on the “REFRESH” button to read and display the data from the pump.



9. Infrared data transmission progress is indicated by the messages “Communication successful” or “Communication unsuccessful” displayed in the lower left-hand corner of the dialog box.
10. If a “?” is displayed in all the boxes on the “Information” tab (except a “V” in the “Software Version Number” box), then an error has occurred. Check the setup, including the IR Interface module connection and orientation in relation to the pump, and check that there is no obstruction between the infrared windows of the Pump and IR remote. Then click on the “REFRESH” button to read and display the data from the pump.
11. The “Service”, “Test”, “Production” and “Engineering” tabs are password protected. In normal operation, each of these tabs will have a unique password to enable different users to only access certain tabs.
12. Detailed information regarding the controls and indications for all tabs is in Section 4 - Operation.
13. Click on “Quit” to exit the program.

4. Operation

These instructions cover the detailed operation of the **IR Interface** and **IRRemote** software when communicating with a pump.

Connection to Pump

Refer to Section 3 - Installation and Setup, and carry out the following:

- Install and setup the **IR Interface**.
- Run the **IRRemote** software.
- Select the correct pump on the “Connection” menu, initialize the pump, and click “OK”.

Passwords

The “Information” tab is not password protected.

The other four tabs (“Service”, “Test”, “Production” and “Engineering”) are password protected. In normal operation, each of these tabs will have a unique password to enable different users to only access certain tabs.

When any of the four password protected tabs is selected, an “Enter Password” dialog box is displayed. Type in the password, and click “OK”. If the password is correct, the particular tab will be displayed.

If the password is incorrect, access to the tab will be denied, and an “Invalid Password” dialog box will be displayed. Click “OK” and select the tab again to re-enter the password.

Passwords are not case sensitive.

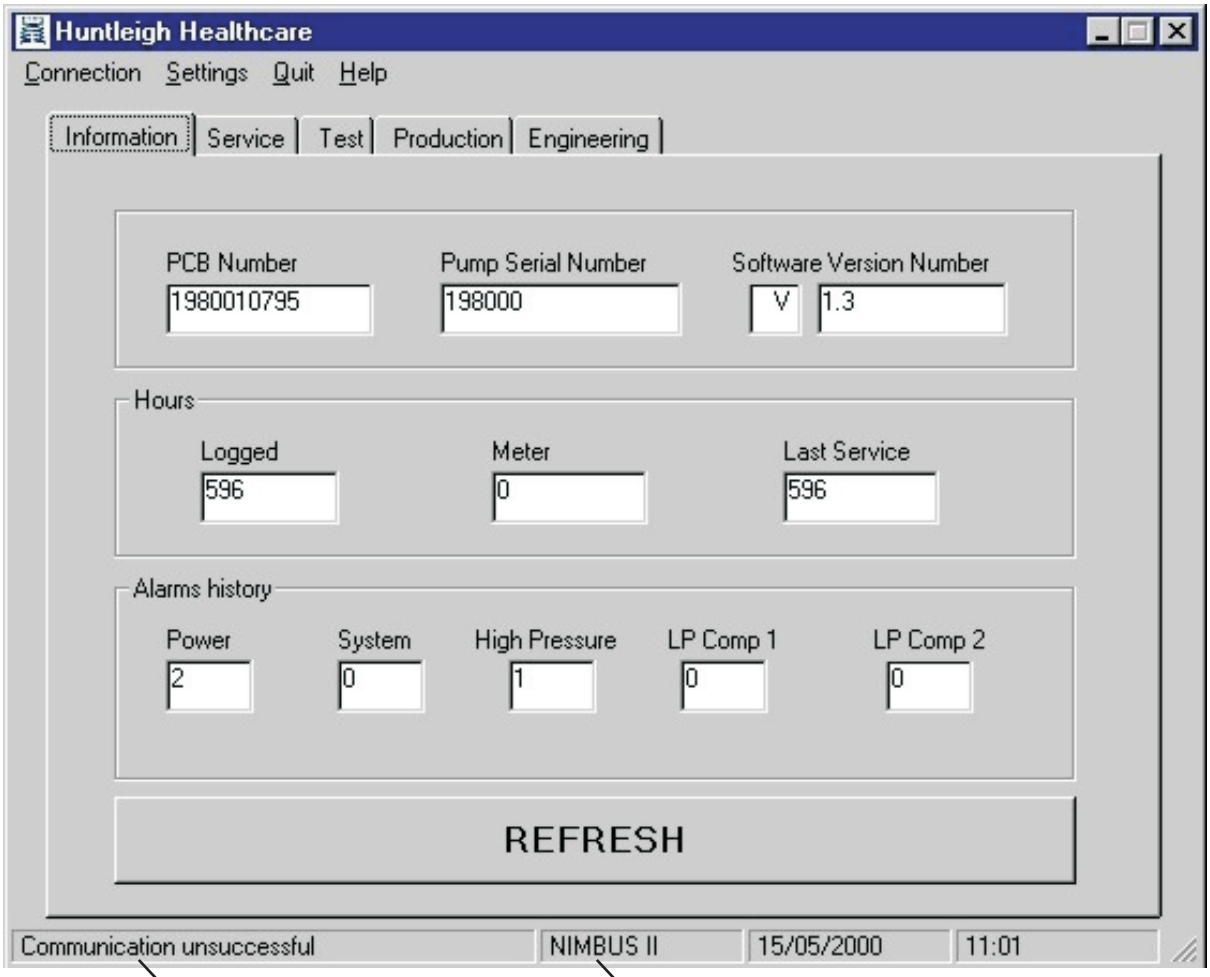
The password for the “Service” tab is **SERVICE**.

The password for the “Test” tab is **TEKKICHECK**.

The “Production” and “Engineering” tabs are for internal Huntleigh Healthcare use only. Should it be necessary to access either of these two tabs, please contact Huntleigh Healthcare who will supply the relevant passwords to access the tabs.

Information Tab

If the pump is NIMBUS II or 3, or DFS 2 or 3, the following “Information” tab will be displayed:



Click the “REFRESH” button to read the information from the pump.

The pump type is indicated in the status bar at the bottom of the window.

The status of the infrared data transmission is indicated by the messages “Communication successful” or “Communication unsuccessful” displayed in the status bar at the bottom of the window.

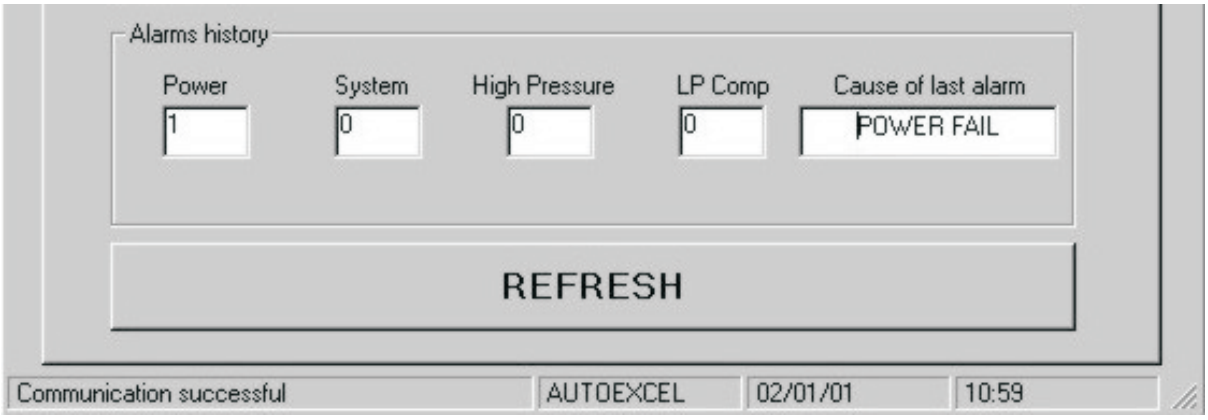
If the infrared data transmission status indicates “Communication unsuccessful” and/or a “?” is displayed in all the boxes on the “Information” tab (except a “V” in the “Software Version Number” box), then an error has occurred. Refer to Section 3 - Installation and Setup, and check the setup, including the IR Interface module connection and orientation in

relation to the pump, and check that there is no obstruction between the infrared windows of the Pump and IR remote. Then click on the "REFRESH" button again to re-read and display the data from the pump.

The following functions are available on the "Information" tab:

PCB Number	This is the serial number of the display panel PCB in the pump, and can only be changed on ATE.
Pump Serial Number	A new serial number can be set on the "Production" tab.
Software Version Number	The version number of the **IRRemote** software.
Hours - Logged	Displays the logged hours of operation since the display panel PCB was manufactured, and cannot be reset.
Hours - Meter	This counts up "1" for every hour of service time, and can be reset by the "Hours - Reset Meter" button on the "Service" tab.
Hours - Last Service	Displays the value of the "Hours - Logged" at the last service.
Alarms history	Displays how many times the following alarms have occurred: "Power", "System", "High Pressure" and Low Pressure ("LP Comp 1" and "LP Comp 2").

If the pump is AUTOEXCEL or DFS HOMECARE, the "Information" tab will be the same as that displayed for the NIMBUS II and 3, and DFS 2 and 3, except the "Alarms history" will be as shown below:

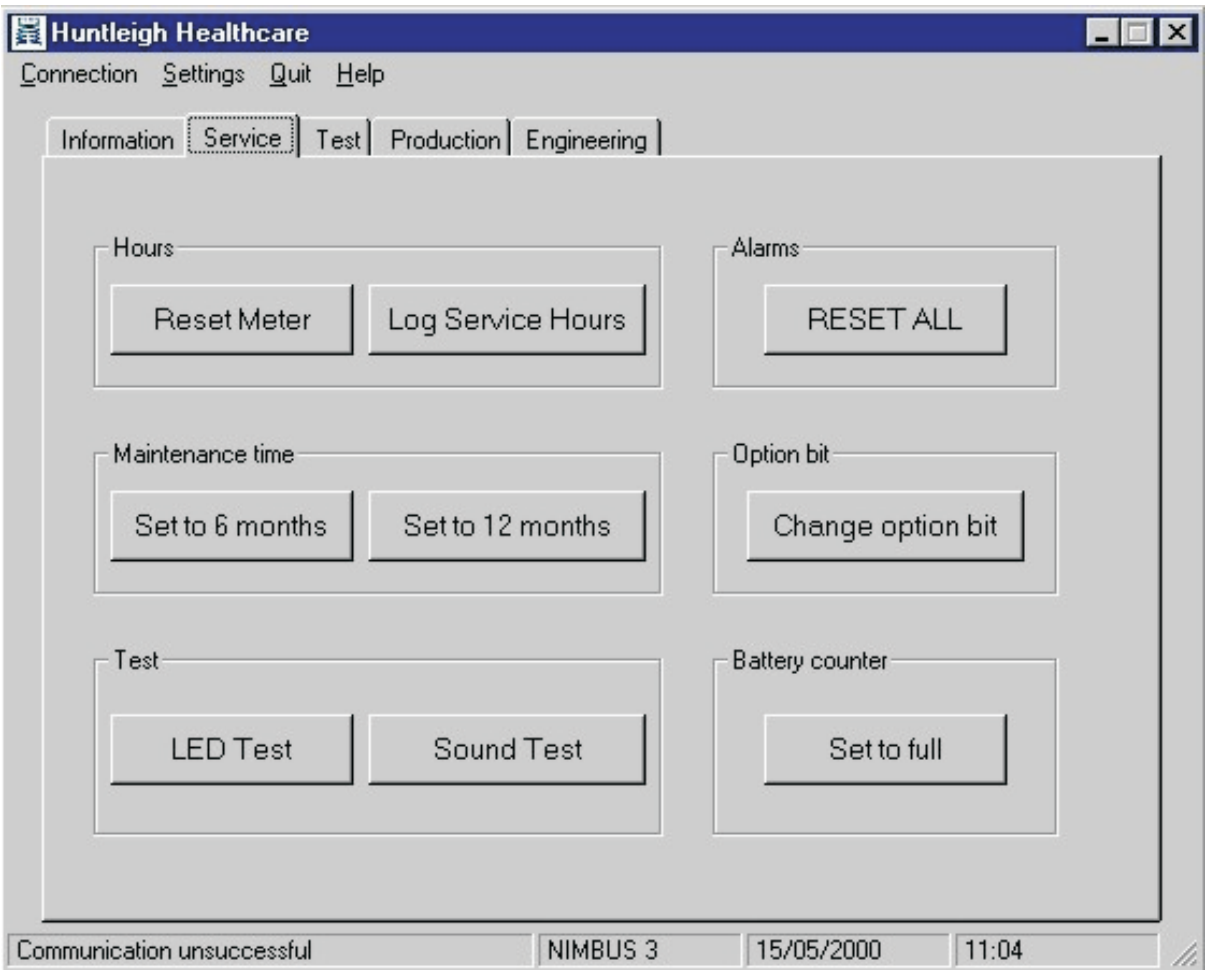


Alarms history Displays how many times the following alarms have occurred: “Power”, “System”, “High Pressure” and Low Pressure (“LP Comp”). The “Cause of last alarm” indicates the most recent alarm that has occurred.

Service Tab

Select the “Service” tab, enter the password **SERVICE**, and the following “Service” tab will be displayed.

"Maintenance time” is not displayed if the pump type is AUTOEXCEL or DFS HOMECARE.



The following functions are available on the “Service” tab:

Hours - Reset Meter Resets the “Hours - Meter” on the “Information” tab.

Hours - Log Service Hours Stores the value of the “Hours - Logged” at the last service, and displays this value in the “Hours - Last Service” in the “Information” tab.

Alarms - RESET ALL Resets the alarms which are displayed in the "Alarms history" on the "Information" tab.

Maintenance time This is displayed only if the pump is a NIMBUS II or 3, or DFS 2 or 3. You can set the maintenance time to either 6 or 12 months. When you click on the button, an "Are you sure?" dialog box is displayed. Click "Yes" to set the required time.

Change option bit Sets the power fail triangle to "one" continually in the event of a power fail. When you click on the button, an "Option bit currently reset. Do you want to set it?" dialog box is displayed. Click "Yes" to set the option.

LED Test Performs a LED test, by illuminating the LEDs for a few seconds and then extinguishing them.

Sound Test Performs a sound test, by activating the sounder once.

Battery counter - Set to full Sets the battery counter to full (i.e. 240) to charge the battery on the display panel PCB. When you click on the button, a "Battery counter value is at X. Set to 240 to charge?" dialog box is displayed. Click "Yes" to continue. An "Are you sure?" dialog box is then displayed. Click "Yes" to charge the battery.

Test Tab

Select the "Test" tab, enter the password **TEKKICHECK**, and the "Test" tab will be displayed.

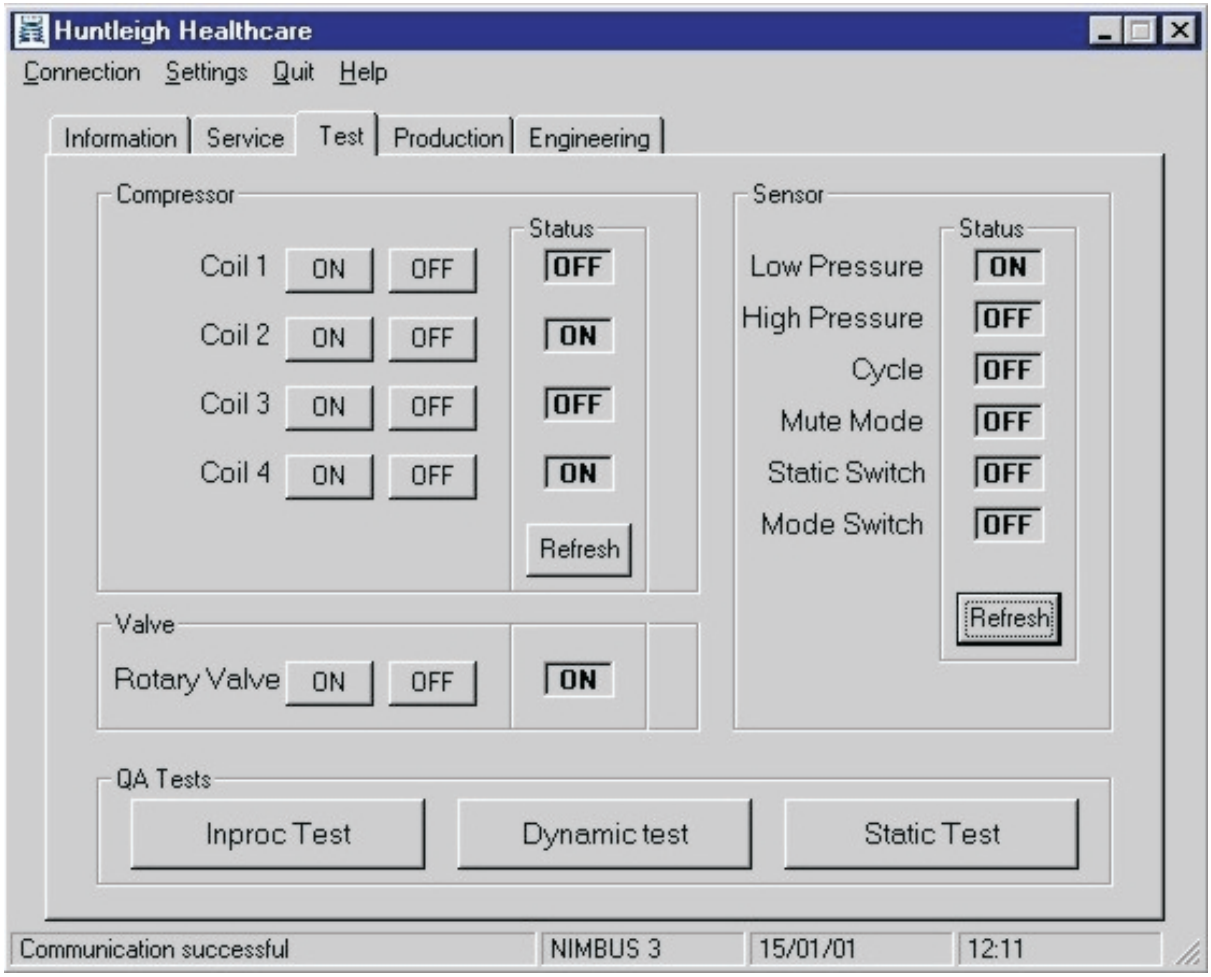
If the pump is NIMBUS II or 3, or DFS 2 or 3, the following "Test" tab will be displayed.

The following functions are available on the "Test" tab:

Compressor - Coil Status Click on "Refresh" to display the status of the compressor coils. If communication with the pump is not successful a "?" character is displayed. Individual compressor coils can be switched on/off.

Sensor - Status Click on "Refresh" to display the status of the sensors. If communication with the pump is not successful a "?" character is displayed.

Rotary Valve The status of the rotary valve is displayed. If communication with the pump is not successful a "?" character is displayed. The rotary valve can be switched on/off.



QA Tests - Inproc Test Click to run the inproc test, as follows:

1. A dialog box with “Switching coils off”, followed by “Refreshing sensor status” is displayed.
2. Wait for the rotary valve to reach the crossover position, at which time the rotary valve is switched off. During this period, the dialog box “Waiting for crossover. This may take up to 5 minutes” is displayed.
3. When the crossover position is reached, the dialog box “Rotor in crossover position. Switch ON Coil 1 and 3?” is displayed. Click “OK”.
4. Coils 1 and 3 are switched on, and the dialog box “Rotor in crossover position. Coil 1 and 3 ON. Switch ON Coil 2 and 4?” is displayed. Click “OK”.

5. Coils 1 and 3 are switched off, and then coils 2 and 4 are switched on. The dialog box “Rotor in crossover position. Coil 2 and 4 ON. Repeat Test Sequence?” is displayed. Click “OK” to repeat the test, or “Abort Test” to end the test.

QA Tests - Dynamic Test

Click to run the dynamic test, as follows:

1. A dialog box with “Switching coils off”, followed by “Refreshing sensor status” is displayed.
2. Wait for the rotary valve to reach the crossover position, at which time the rotary valve is switched off. During this period, the dialog box “Waiting for crossover. This may take up to 5 minutes” is displayed.
3. When the crossover position is reached, the dialog box “Rotor in Port 1 position. Switch ON Coil 1 and 3?” is displayed. Click “OK”.
4. Coils 1 and 3 are switched on, and the dialog box “Rotor in Port 1 position. Switch on Coil 2 and 4?” is displayed. Click “OK”.
5. Coils 1 and 3 are switched off, and then coils 2 and 4 are switched on. The dialog box “Rotor in Port 1 position. Press OK for Port 2?” is displayed. Click “OK” to repeat the test, or “Abort Test” to end the test.
6. Steps 2, 3 and 4 are repeated for Port 2.
7. Coils 1 and 3 are switched off, and then coils 2 and 4 are switched on. The dialog box “Rotor in Port 2 position. Press OK for Port 1?” is displayed. Click “OK” to repeat the test, or “Abort Test” to end the test.

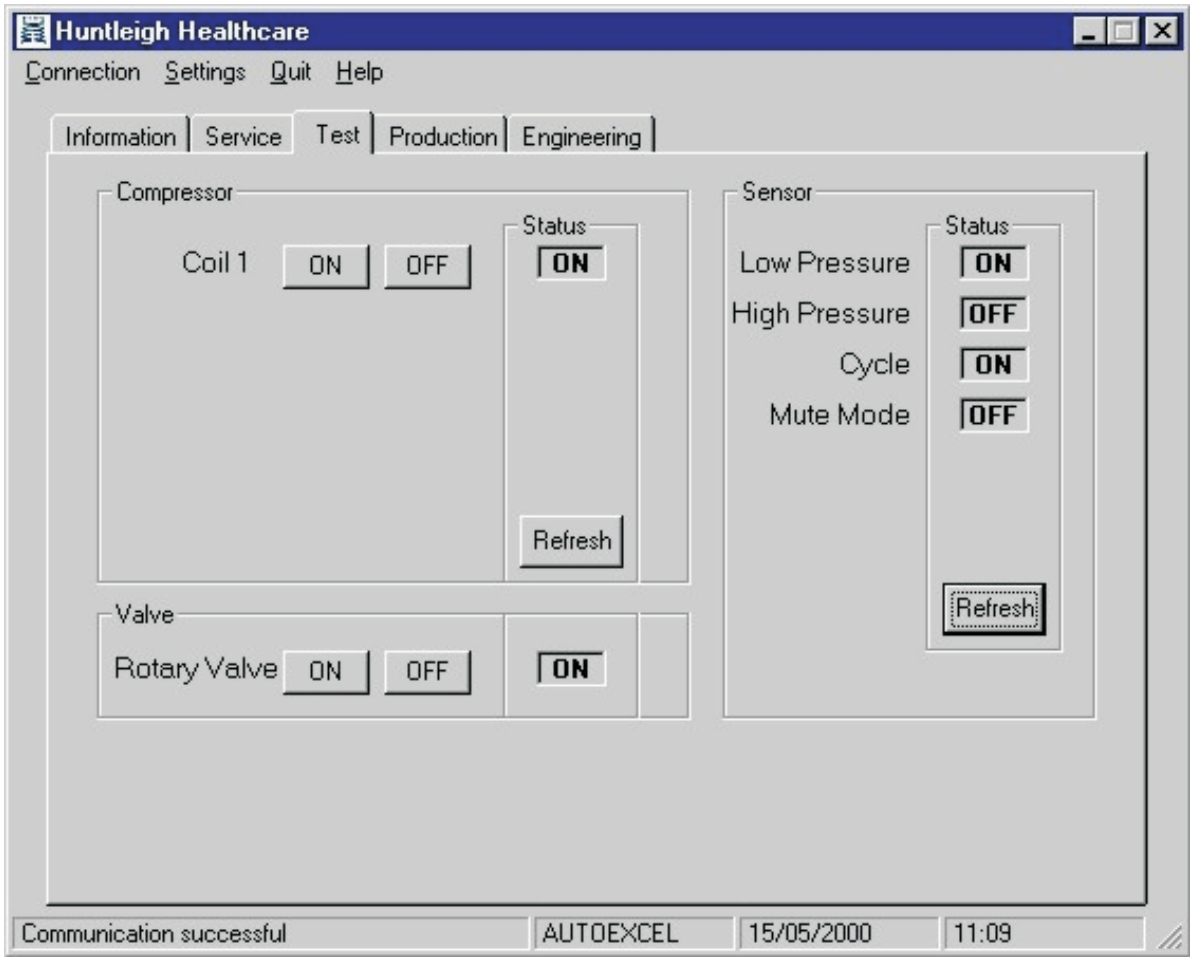
QA Tests - Static Test

Click to run the static test, as follows:

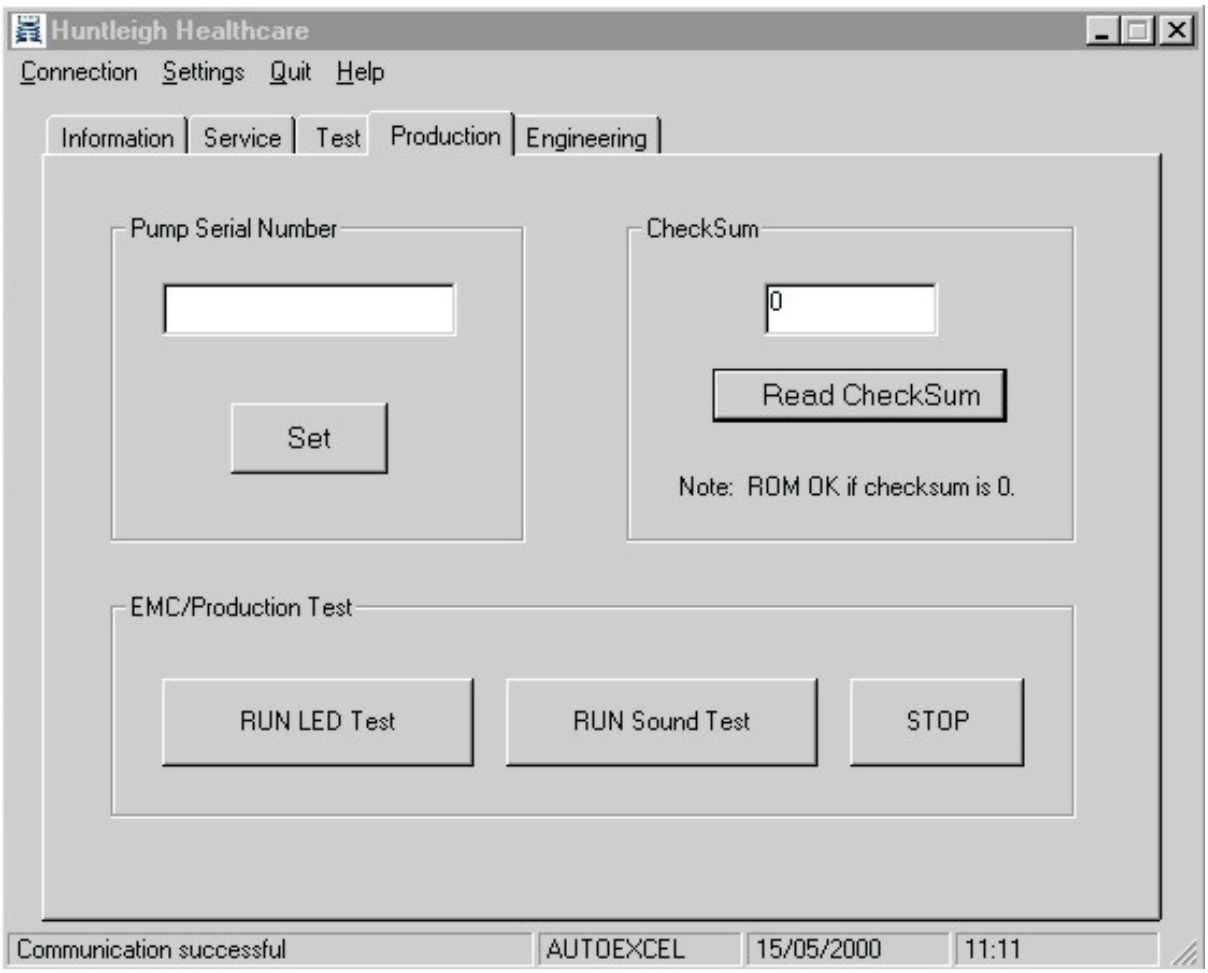
1. A dialog box with “Switching coils off”, followed by “Refreshing sensor status” is displayed.
2. Wait for the rotary valve to reach the crossover position, at which time the rotary valve is switched off. During this period, the dialog box “Waiting for crossover. This may take up to 5 minutes” is displayed.

3. When the crossover position is reached, the dialog box “Rotor in crossover position. Switch ON Coil 1?” is displayed. Click “OK”.
4. Coil 1 is switched on, and the dialog box “Rotor in crossover position. Coil 1 ON. Switch ON Coil 2?” is displayed. Click “OK”.
5. Coil 1 is switched off, and then coil 2 is switched on. The dialog box “Rotor in crossover position. Coil 2 ON. Switch ON Coil 3?” is displayed. Click “OK”.
6. Coil 2 is switched off, and then coil 3 is switched on. The dialog box “Rotor in crossover position. Coil 3 ON. Switch ON Coil 4?” is displayed. Click “OK”.
7. Coil 3 is switched off, and then coil 4 is switched on. The dialog box “Rotor in crossover position. Coil 4 ON. Repeat Test Sequence?” is displayed. Click “OK” to repeat the test, or “Abort Test” to end the test.

If the pump is AUTOEXCEL or DFS HOMECARE, the following “Test” tab will be displayed:



Production Tab Select the “Production” tab, enter the password, and the following “Production” tab will be displayed:



The following functions are available on the “Production” tab:

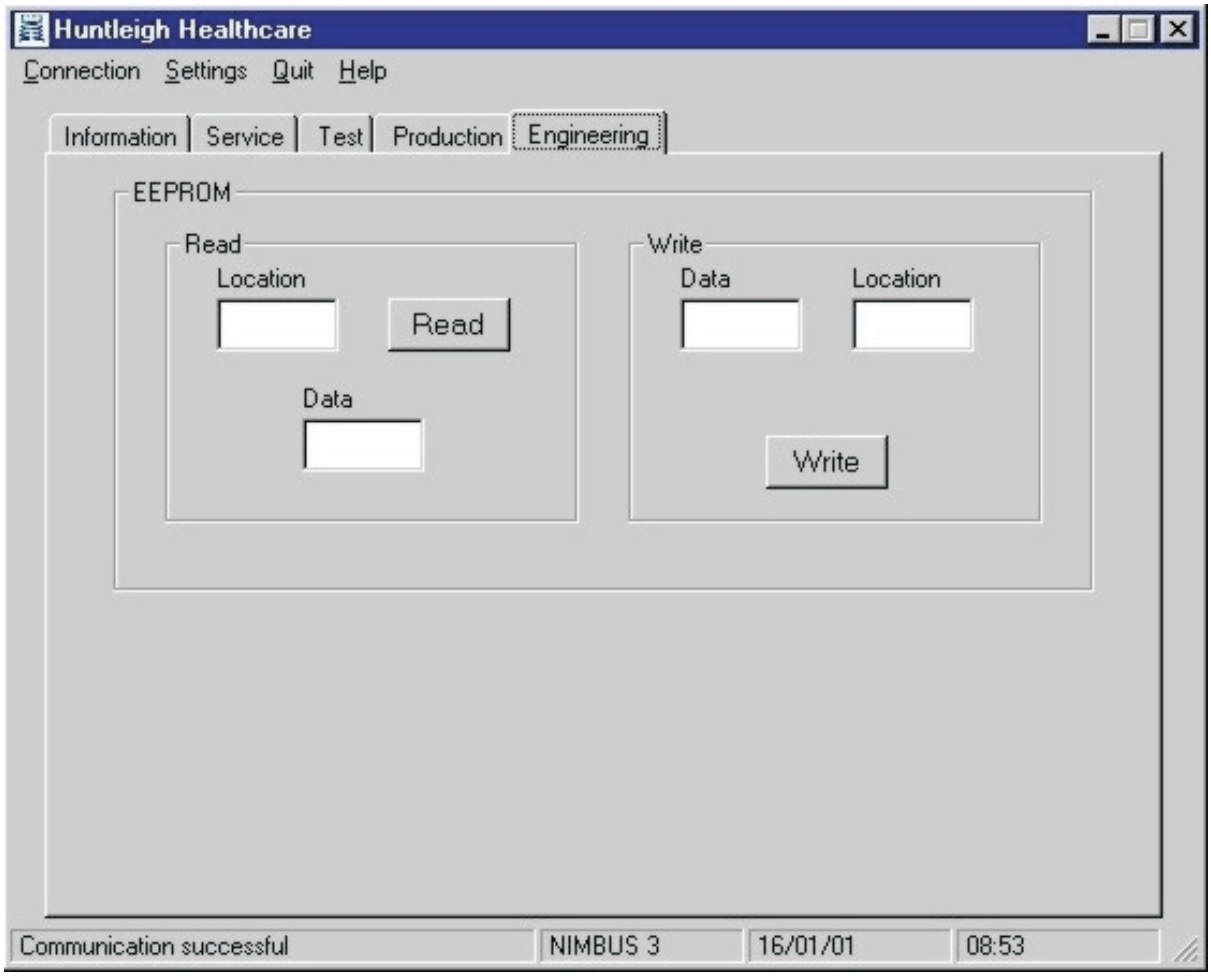
Pump Serial Number Type the new serial number, and click “Set” to store it. The new serial number will be displayed on the “Information” tab.

CheckSum The checksum test is a test of the ROM on the display panel PCB, and is performed by the pump software. Click “Read CheckSum” to perform the test, and the returned result should be “0” to pass.

EMC/Production Test - RUN LED Test Performs a continuous LED test, by cycling the LEDs “on” for a few seconds then “off” for a few seconds. Click “STOP” to end the test.

EMC/Production Test - RUN Sound Test Performs a continuous sound test, by activating the sounder every few seconds. Click “STOP” to end the test.

Engineering Tab Select the “Engineering” tab, enter the password, and the following “Engineering” tab will be displayed:



The following functions are available on the “Engineering” tab:

EEPROM - Read This allows EEPROM locations on the display panel PCB to be read. The read location is a decimal number between 0 and 72.

EEPROM - Write This allows EEPROM locations on the display panel PCB to be written to. The write location is a decimal number between 0 and 72.

Caution

Exercise great care if writing new data to any of the EEPROM locations. If the data in the EEPROM is altered, the pump may no longer operate correctly.

5. Warranty and Service

Huntleigh Healthcare's standard terms and conditions apply to all sales. A copy is available on request. These contain full details of warranty terms and do not limit the statutory rights of the consumer.

For service, maintenance and any questions regarding this, or any other Huntleigh Healthcare product, please contact:

Huntleigh Healthcare Ltd
310-312 Dallow Road
Luton
Bedfordshire
LU1 1TD

Tel : +44 (0) 1582 413104
Fax : +44 (0) 1582 459100

6. Technical Description

IR Interface Module MIS216

Supply Voltage:	3V dc (supplied by batteries)
Batteries:	Two "AA" alkaline batteries
Size:	Height 105mm (4.1in.)
	Width 60mm (2.4in.)
	Depth 20mm (0.8in.)
Total length including cable:	500mm (19.7in.)
Weight:	0.2kg (0.4lb)

Regulatory Compliance/Standards

	EN55022 Class B, Group 1
	EN50082-1:1998
Degree of protection against water ingress:	Ordinary (not protected)
Degree of safety in presence of flammable gases:	Not suitable for use in the presence of flammable gases

Data Transmission Performance

Data Transmission Range:	1000mm (39.4in.)
Data Communication Angle for Receiver:	102° or better
Data Communication Angle for Transmitter:	93° or better
Data Transmission Baud Rate for Ir:	1200
Data Transmission Baud Rate for IrDA:	115200

Environmental Conditions

Operating

Temperature range:	+15°C to +35°C
Relative humidity:	30% to 75%
Atmospheric pressure	700hPa to 1060hPa

Storage

Storage temperature range:	-40°C to +70°C
Relative humidity:	10% to 100% (non-condensing)
Atmospheric pressure:	500hPa to 1060hPa
Environmental Protection:	Please dispose of the batteries in accordance with local regulations.

IRRemote Software

Media: Two 3.5in. Floppy Disks
(Labelled: Disk 1 of 2, Disk 2 of 2)

IR Interface Hook **151514**

Quantity: 1

"Dual-Lock" Reclosable Fastener Tape **151515**

Quantity: 1

Circular Foam Pads **BP190**

Quantity: 2

151910_01
01/01

Huntleigh
HEALTHCARE

A *Pyramid of Care*® Product

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