



Hi-G-Tek Ltd. *Microelectronics and Asset Tracking Technology*

DataTerminal and DataSeal System

User's Manual

DataTerminal System

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Chapter 1

Introduction

1.1. About the Product

Thank you for choosing Hi-G-Tek quality products.

The Hi-G-Tek range of products provides a highly reliable and secure cargo and asset monitoring system utilising state-of-the-art RFID technologies.

Cost-effective, more reliable and more secure than their mechanical counterparts, the Hi-G-Tek product range will constantly monitor your assets and alert you to any potential problems at all times.

The Hi-G-Tek system was developed in order to fill the requirement of fast, automatic processing of secured cargoes and to provide real time monitoring of cargoes both in transit and in storage.

The reusable electronic seal automates the processing of secured cargoes enabling the organization to effectively and economically process the increasing numbers of containers' traffic in the ports and between inland destinations.

The DataSeal is a sophisticated device, which includes a transmitter/ receiver unit, real-time clock, processor, memory and sensing circuitry for sealing verification. The Sealing Wire prevents any attempt of opening, bypassing or tampering with the seal without alerting the system and recording of the event. The system combines the technological and operational advantages of both low frequency close-range data management AND high frequency long range sealing verification and automatic data collection.

DataSeal's ability to log data and communicate it through a Handheld DataTerminal is best used In low frequency/short range applications. This way the electronic manifest of the sealed cargo can be written into the DataSeal's memory. The information includes Vehicle ID, container and invoice numbers, cargo description, quantities, destination, etc. Capable of logging up to 55 events, the information can be downloaded into a computerised database for storage and processing.

When used in high frequency/long range applications, the **DataSeal** is capable of communicating its ID and status to a distance of up to 30 meters. The **DataSeal** transmits the information in reply to an interrogation by the **DataReader**. The ability of the **DataSeal** to communicate with the **DataReader** at long range enables the use of the **DataSeal** in applications such as: tracking and sealing verification of containers in transit, protection of containers in storage, remote, automatic data collection from secured cargoes as they pass through check points, etc.

The handheld **DataTerminal** is used for writing information into the **DataSeal's** memory at the departure point and retrieving the information at the destination. Events, logged in the **DataSeal's** memory are also downloaded into the **DataTerminal**.

The **DataReader** is used in long range applications to interrogate the **DataSeals** over the high frequency channel for their ID and Status. The **DataReader** is also used for writing information into the **DataSeal** and retrieving logged information from the **DataSeal**. Each **DataReader** can communicate with numerous **DataSeals** simultaneously and verify their presence and status. The **DataReaders** can be chained to allow coverage and protection for secured cargoes in large storage yards and ports. The **DataReader** has an optional communication modem which allows the system to transmit the collected information through available communication channels to the Control Center. The **DataReader** is available in both outdoor and indoor models.

A set of **Mounting Fixtures** has been developed for the **DataSeal** system which allow convenient mounting and removal of the **DataSeal** whenever required. The various **Mounting Fixtures** differ in the level of protection they provide to the **DataSeal** as may be required in various environments.

This User's manual includes all the information required for installing and operating Hi-G-Tek Electronic Seals and DataTerminals.

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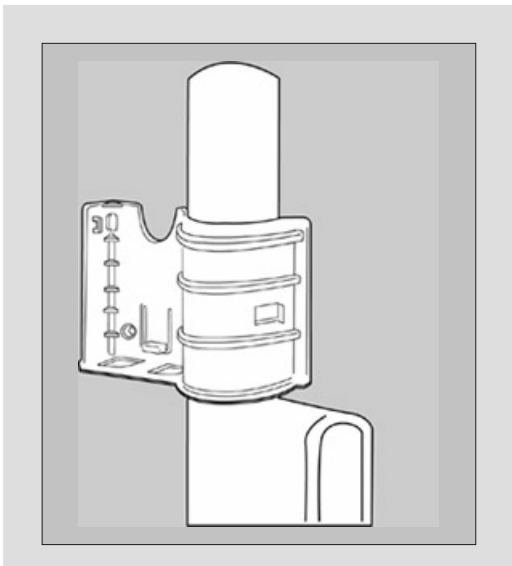
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Pentium[™] is a trademark of Intel Corporation.

1.2 DataSeal System Components

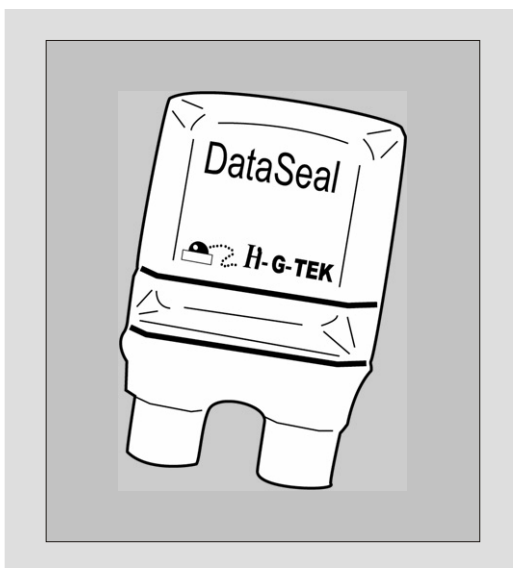
1.2.1. The Mounting Fixture

The DataSeal Mounting Fixture is used to mount the DataSeal on the container's keeper bar or other surface.



1.2.2. The Seal

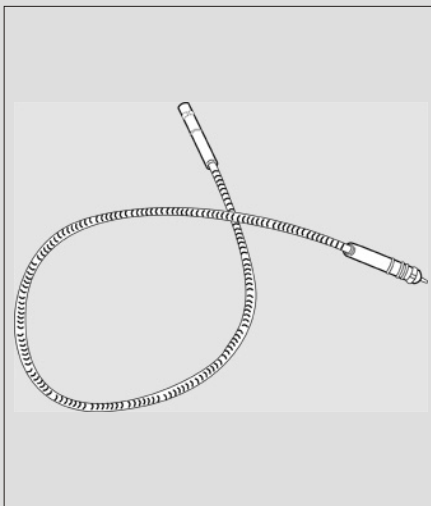
The DataSeal unit contains the electronic circuitry of the DataSeal including a battery, a transceiver, a processor and memory to record and store the events and the relevant information about the cargo.



1.2.3. Seal Wire

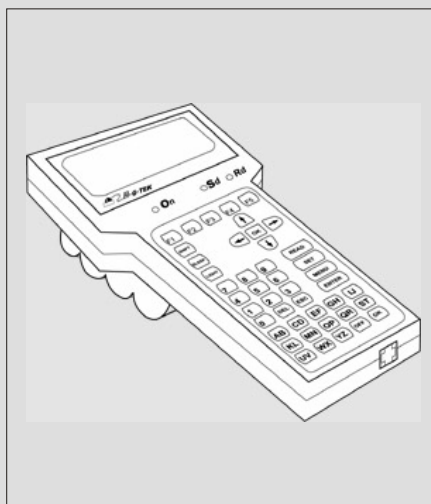
The DataSeal Wire serves to seal the cargo.

Any tampering with the DataSeal Wire at any point during transport is recorded and reported at once.



1.2.4. DataTerminal

The DataTerminal is a hand-held terminal used to enter data into the system.



Display Screen

All information is displayed on the screen in alpha-numeric format.

Indicators

On/Off **Green LED:** Power is on and system is OK

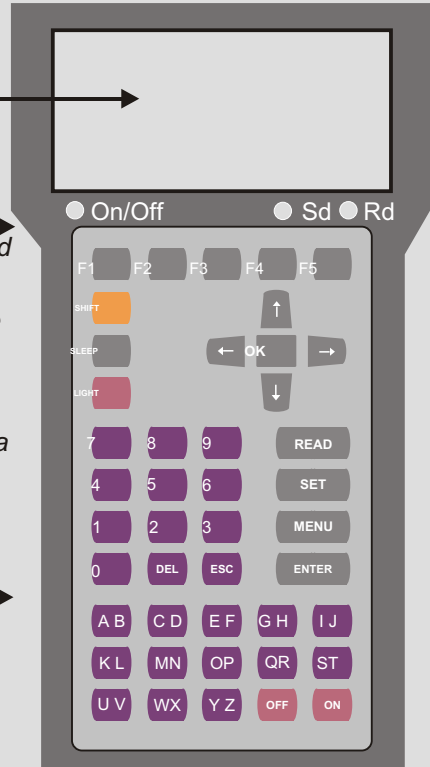
Red LED: Power is on, there is a problem with the unit.

Sd The terminal is sending data

Rd The terminal is receiving data

Key Pad

The keypad is used to enter alpha-numeric data into the Hand-Held Terminal



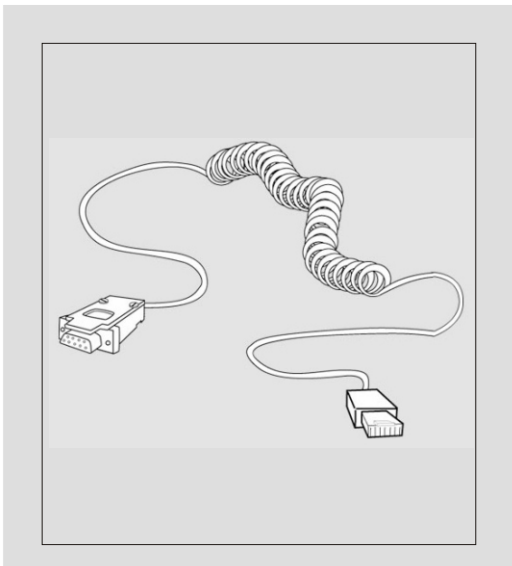
The DataTerminal connects to the computer via a RS-232 communication cable. The cable links the Terminal to the computer. It is connected to the RS-232 port located on the base of the DataTerminal and to the RS-232 port on the computer.



RS-232 communication cable port

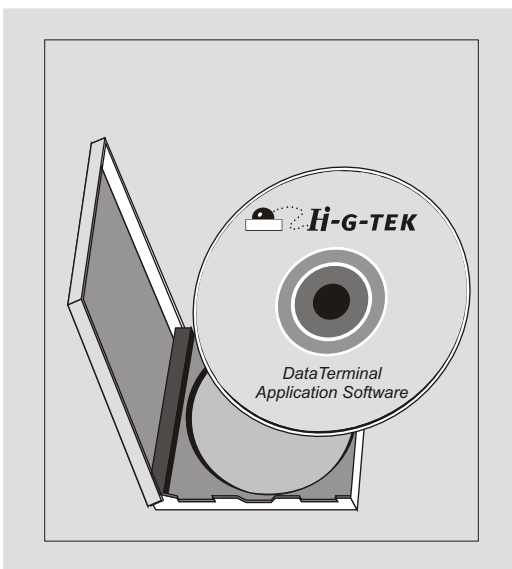
1.2.5. Communication Cable

The RS232 communication cable supplied with the system connects the DataTerminal to the PC.



1.2.6. Application Software

The Application Software is used to store and retrieve event information.



1.3. Minimum System Requirements

- An IBM PC or compatible with Pentium CPU, running at 200 MHz or faster.
- Minimum 32 MB RAM
- Screen resolution: Display set at 800X600 pixels, 16 bit colors
- Minimum of 8 MB free on your hard drive.
- Free communication port (COM1....COM4)

Chapter 2

DataSeal Installation

2.1 DataSeal Installation

step 1.

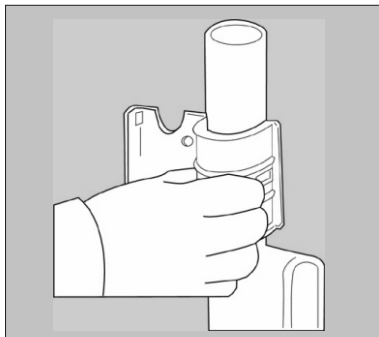
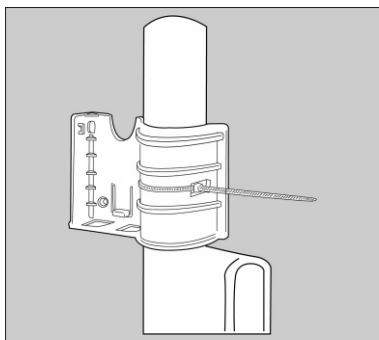


Fig. 1

To install the DataSeal Mounting Fixture, attach the fixture to the keeper bar at the back of the container (fig.1). A click indicates that the fixture is in place.



The two side slots may be used to secure the mounting fixture to the container using a plastic strap(fig.2)

Fig. 2

step 2.

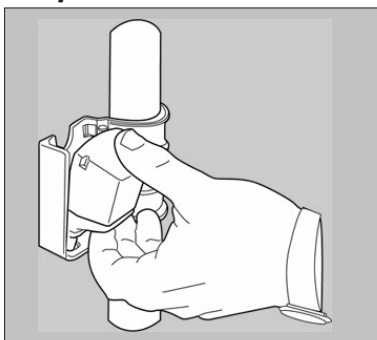
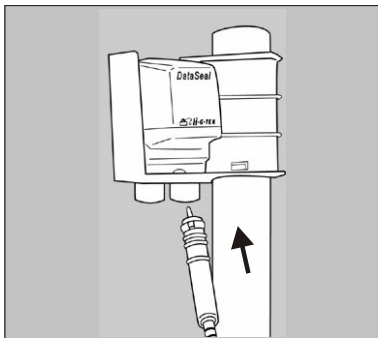


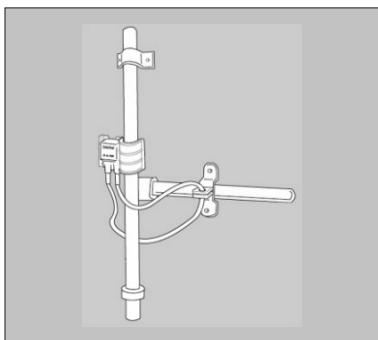
Fig. 3

To install the DataSeal, hold the unit at a 45° angle as illustrated and snap it into place in its cradle on the DataSeal Mounting Fixture. (fig. 3)

step 3.

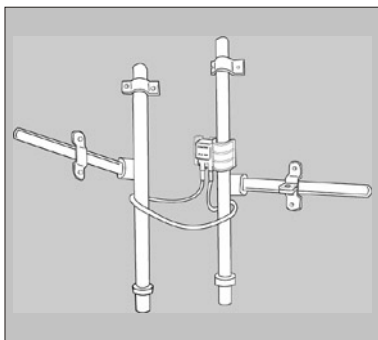
To connect the DataSeal Wire, simply attach one end of the seal wire connectors to either of the sockets at the base of the DataSeal (fig 4).

Fig. 4



Loop the wire through the container locking ring and the keeper bar, then insert the end into the other socket (fig. 5).

Fig. 5



Alternatively, you may loop the wire through both keeper bars then insert the end into the other socket (fig. 6).

Fig. 6

Step 4: Setting the Seal using the DataTerminal

Press the **ON** key and verify that the green light is on. Place the DataTerminal between 5 and 40cm from the seal and press the **SET** key.

Step 5: Reading the Seal with the DataTerminal

This procedure is carried out at destination.

Place the DataTerminal between 5 and 40cm from the Seal and press the **READ** key. The appearance of the **OK** notation on the units display screen and two beeps indicate that everything is in order and no mishaps have occurred during transport. The **TAMPERED** notation, appearing together with a single audible beep indicates that the seal was tampered with during transport.

Chapter 3

DataTerminal Operating Instructions

3.1 Battery Installation/Replacement:

Side View of DataTerminal



- 1) The battery compartment is located at the rear of the terminal behind the terminal screen.
- 2) Open the battery compartment with a screwdriver.
- 3) **Use Only "AA" size alkaline batteries!**
- 4) Remove the used batteries if required. Insert 4 new alkaline size "AA" batteries into the compartment ensuring that polarity matches that indicated.
- 5) Screw the battery compartment lid back into place.

WARNING !

**RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.
DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.**

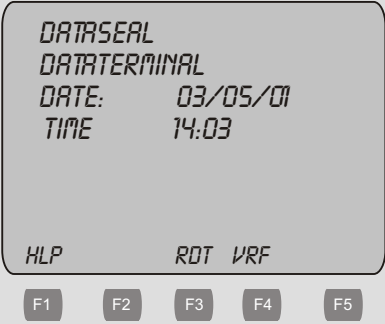
3.2. Initial Steps



Activate the unit by pressing the **ON** key and verify that the green indicator lights up. The following notice appears on the screen, followed by the initialization reading



After a few seconds, the screen reads:



3.3. Screen Contrast

The screen contrast may be changed using the up and down arrow keys.

3.4. Keypad Buttons

SHIFT

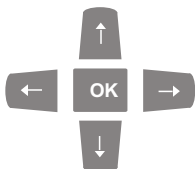
To operate the color coded function keys or the numerical keys, press the <shift> button and then the required key.

SLEEP

Sets the seal to **SLEEP** mode

LIGHT

Used for lighting the screen panel in dimly lit areas or at night. The backlight function is activated by pressing the button. To conserve energy, the light automatically switches off 15 seconds after the button has been released.



OK key and direction arrows

ESC

Press the ESC key to return to the previous menu or to exit the application

DEL

Press DEL to delete characters on the terminal screen



The Alphanumeric keyboard, situated in the center and at the bottom of the keypad panel, is used for entering alphanumeric data.

Note: Ensure the seal you are reading is at least 60 cm. (2 ft.) from any other seal in the vicinity.

3.5. Set Procedure

3.5.1. Basic Set Procedure



The SET key is located on the right hand side of the panel, below the arrow keys. To begin a SET sequence, press the SET key. The seal must be closed before performing the SET sequence. If the seal is open, a warning message appears on the screen. .

A SET sequence may be entered with or without cargo manifest information. When the SET key is pressed, the following screen appears:

CID.....

CONT.....

DEST.....

POINT DATATERMINAL AT SEAL

PRESS OK TO CONFIRM

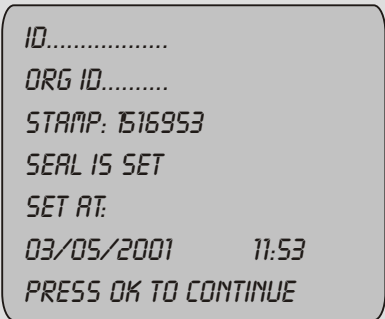
To avoid entering cargo manifest data, press ESC. The following screen appears:



```
USER DATA
ABORT DATA ENTRY?

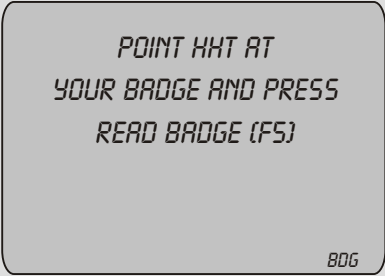
NO
YES
```

To continue setting the seal, scroll to the YES option. Press OK while pointing the DataTerminal at the seal. The following screen appears:



```
ID.....
ORG ID.....
STAMP: 1516953
SEAL IS SET
SET AT:
03/05/2001      11:53
PRESS OK TO CONTINUE
```

3.5.2. Set Procedure with Badge ID



*POINT HHT AT
YOUR BADGE AND PRESS
READ BADGE (F5)*

806

F5

Point the bottom of the terminal at the inspector ID badge and press the READ BADGE key to enter inspector's information into the terminal. The following screen appears:



WELCOME INSPECTOR 123

PRESS OK TO CONTINUE

3.6. READ Procedure

3.6.1. Basic READ Procedure



READ

The READ operation allows the User to retrieve events stored in the seal.

Press on READ to receive information regarding data stored in the seal. The screen then reads:

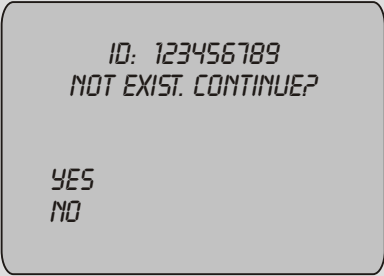


*DATASEAL
READ SEAL
IN PROGRESS

PLEASE WAIT!*

After a short period, one of four possible events will be displayed:

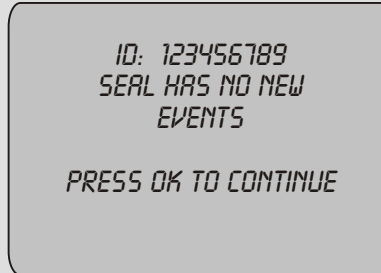
- ◆ The seal is not in the terminal database.
The following will be displayed on the screen:



*ID: 123456789
NOT EXIST. CONTINUE?

YES
NO*

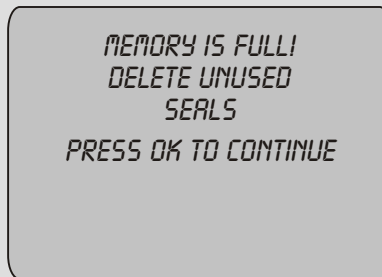
- ◆ If a seal's internal database is identical to that of the terminal, the following appears on the screen:



*ID: 123456789
SEAL HAS NO NEW
EVENTS

PRESS OK TO CONTINUE*

If the terminal's database memory is full, the following will appear on the screen:



*MEMORY IS FULL!
DELETE UNUSED
SEALS

PRESS OK TO CONTINUE*

To delete seals, follow the CLEAR DATA procedure described in section 3.10.2. of this manual. The READ process can not be completed unless the seal has been deleted.

- ◆ The seal has not been tampered with in any way. The following will be displayed on the screen:

```
ID:  
ORG. ID:  
SEAL #: 123456789  
STAMP: 1231234  
SEAL IS:      OK.  
SET AT:  
14/12/01  11:29  
PRESS OK TO CONTINUE
```

The terminal will sound two confirmation beeps.

- ◆ The seal has been tampered with. A TAMP message will be displayed on the screen:

```
ID:  
ORG ID:  
SEAL #: 123456789  
STAMP: 1231234  
SEAL IS:      TAMP.  
SET AT:  
14/12/01  11:29  
PRESS OK TO CONTINUE
```

The terminal will sound one long beep.

3.6.2. Read Procedure with Badge ID



*POINT HHT AT
YOUR BADGE AND PRESS
READ BADGE (F5)*

BDG

F5

Point the terminal at the inspector's ID badge and press the READ BADGE key to enter inspector's information into the terminal.

The screen reads:



WELCOME INSPECTOR 123

*POINT DATATERMINAL AT
SEAL AND PRESS OK
TO READ SEAL*

3.7. VRF
DATA

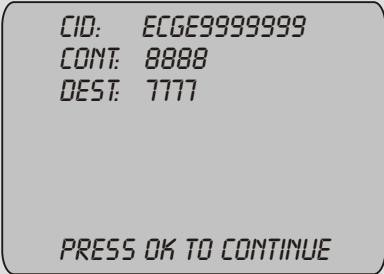
F4

- ◆ Click on the F4 function key to verify seal status. This function displays current SEAL and TAMP status.

3.8. RDT DATA

F3

- ◆ Click on the F3 function key to READ DATA. The following screen appears:



```
CID:  ECGE9999999  
CONT: 8888  
DEST: 7777
```

PRESS OK TO CONTINUE

If there is no data stored, all values will appear as blanks.

3.9. Menu Options

MENU

Pressing on the menu button displays the following range of options on the screen:

- 1 > View Data
- 2 > Clear Data
- 3 > Statistics
- 4 > Setup Date
- 5 > Setup Time
- 6 > Setup Zone
- 7 > Display version
- 8 > Configuration
- 9 > View Org. ID List
- 10> View Reader ID
- 11> Synchronize Time

You may scroll through these functions using the arrow up and down keys. Pressing the OK key activates the selected function. Pressing the ESC key will restore the previous reading on the screen.

Data Structure

Before going into details, it is important to understand the basic structure of the events data organization.

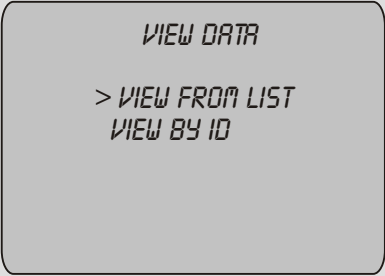
Occurrences that cause an event are: SET (setting the seal), OPEN (opening the wire) or CLOSE (closing the wire), TAMP (tampering with the seal i.e. changing the seal resistance) and LOW BAT - low battery warning, S.SET (seal is soft set), RTC (Date/Time data in RAM and EEPROM is corrupted), DB (Database is corrupted), TIME (time has been changed) and C.SET (Seal is conditional SET).

Every event that occurs is written and stored in the seal's event memory. A page can contain up to 55 events. For example, after a new seal SET occurrence, the page will contain the SET event. If a tampering event occurs, the next READ operation will show the SET event and the TAMP event.

If the seal is then opened and closed, the next READ operation will show four events: SET, TAMP, OPEN, CLOSE.

3.9.1.
> VIEW DATA

Selecting the >VIEW DATA function opens a screen allowing the user a choice of two EVENT display modes. A function is selected by scrolling through the list using the up/down arrow keys and then pressing OK.



3.9.1.1.
> VIEW FROM LIST

The > VIEW FROM LIST procedure also includes an event counter (ev. cnt) for each seal on the list. When the counter shows 0000, the seal must be replaced.

Selecting > VIEW FROM LIST displays a list of seal IDs from which the User can choose.

VIEW FROM LIST	
SEAL ID.	EV. CNT
1610616835	2198
1610616836	1075
1610616837	2020
1610616838	0978
>1610616839	1843

In this example, seal # 1610616839 has 1843 events left.

To select a seal ID, use the arrow keys to scroll up or down.

Choosing seal 1610616839 shown in the previous example, displays the following screen:

```
SEAL # 1610616839
PAGE #001 OF 041
SET 03/12      15:20
OPEN: 14      CLOSE: 14
TAMP: 03  LB
```

The first two rows of the screen are displayed alternately.

The screen above shows the first of 41 pages, meaning seal #1 out of 41.

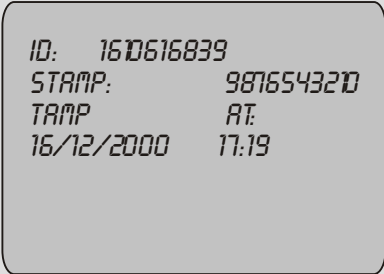
There are 32 events in that page: 14 OPEN events, 14 CLOSE events, one SET event and 3 TAMP events. There is also a Low Battery warning for that seal. Click on OK or ENTER to move on to the next screen which shows the full event list:

```
TAMP  25/03      09:11
CLOSE 24/03      12:52
OPEN  24/03      11:40
SET    24/03      11:29
```

The DataTerminal records the following events:

Event	Description
SET	Seal is SET
TAMP	Tampering with the seal - i.e. changing seal resistance
LOW BAT	Low battery warning
OPEN	Seal wire opened
CLOSE	Seal wire closed
S.SET	Seal is Soft Set
RTC	Date/Time data in RAM and EEPRPOM is corrupted
DB	Database corrupted
READ	Seal was read
TIME	Time was changed
C.SET	Seal is conditional SET

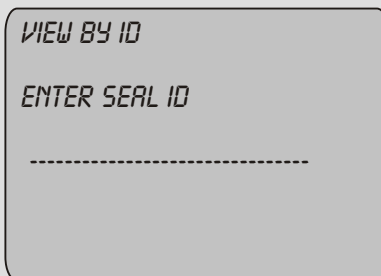
For a detailed description of a specific event, scroll up or down the screen to the event and press ENTER. A detailed event window such as the one below will be displayed:



The above screen shows a TAMP event recorded by seal 1610616839 on 16/12/2000 at 17:19 hours
Press ENTER to return to the events screen.

3.9.1.2.

> *VIEW BY ID*

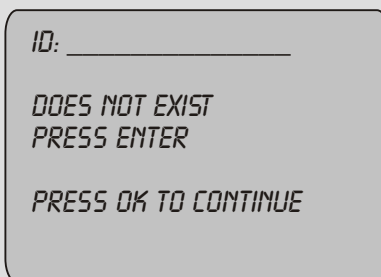


VIEW BY ID

ENTER SEAL ID

This function allows the user to type in a specific seal ID. The seal's events are then displayed on the screen.

After entering the seal ID and pressing OK, the seal ID screen is on. If an incorrect seal ID has been entered, the following appears on the screen:



ID: _____

DOES NOT EXIST

PRESS ENTER

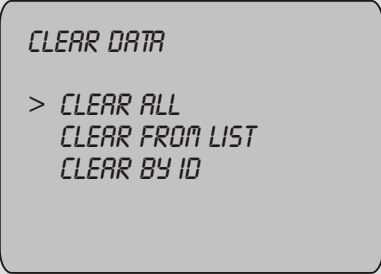
PRESS OK TO CONTINUE

Information is obtained in the same manner when choosing the > *VIEW BY ID* option except for the initial procedure for reaching the desired seal.

3.9.2.

> *CLEAR DATA*

Selecting the > *CLEAR DATA* function opens a screen that allows the User a choice of three functions to be selected scrolling through the list using the up/down arrow keys and then pressing OK.



A screenshot of a menu titled "CLEAR DATA". Below the title, there are three options: "> CLEAR ALL", "CLEAR FROM LIST", and "CLEAR BY ID". The first option is highlighted with a greater-than sign.

3.9.2.1.

> *CLEAR ALL*

Selecting the >*CLEAR ALL* option erases all seal data from memory.

Prior to erasing the data, a confirmation request appears:



A screenshot of a confirmation screen titled "CLEAR ALL DATA". Below the title, there are two options: "NO" and "YES".

3.9.2.2.

> *CLEAR FROM LIST*

Selecting the > *CLEAR FROM LIST* option displays the following on the screen:

```

CLEAR FROM LIST
SEAL ID
000000001029
000000001027
  
```

Select seal to be deleted and press ENTER. The following request for confirmation appears on the screen:

```

ID: 000000001029

CLEAR?
NO
YES
  
```

Scroll through the options using the up/down scrolling keys. Press ENTER to select your option.

3.9.2.3.

> *CLEAR BY ID*

Selecting the > *CLEAR BY ID* option allows you to enter the ID number of the seal to be deleted.

```

CLEAR BY ID
ENTER SEAL ID

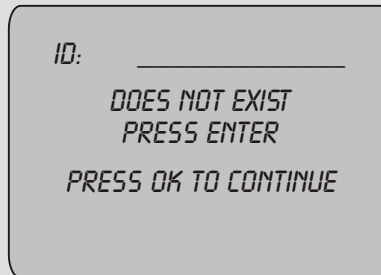
-----
PRESS OK TO CONFIRM
  
```

Enter seal ID to be deleted and press ENTER.
Prior to deleting the data, a confirmation request appears on the screen:



Select the option required and press ENTER.

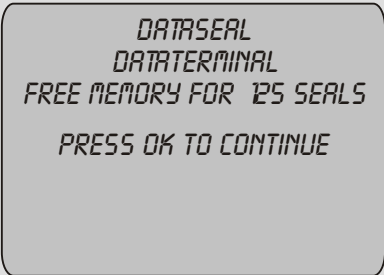
In case a specific ID requested from either
> *VIEW DATA* or > *CLEAR DATA* menu screens does
not exist in the DataTerminal database, the
screen reads:



3.9.3.

> *STATISTICS*

The STATISTICS function advises the User regarding the amount of memory left.

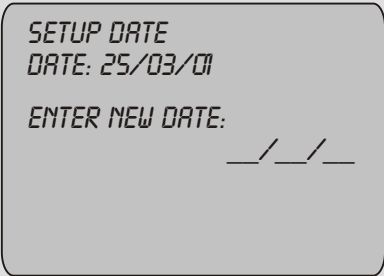


*DATASEAL
DATATERMINAL
FREE MEMORY FOR 125 SEALS
PRESS OK TO CONTINUE*

3.9.4

> *SETUP DATE*

Selecting the SETUP DATE function is displayed on the screen as follows:



*SETUP DATE
DATE: 25/03/01
ENTER NEW DATE: / /*

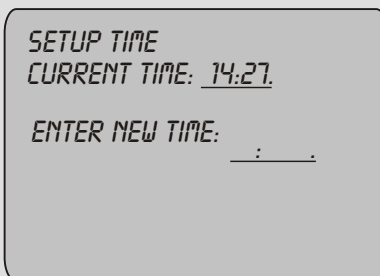
The date may be entered in either European **(DD/MM/YY)** or US **(MM/DD/YY)** format, depending on your configuration function choice. See section 3.9.8.3. of this manual for information regarding configuration procedures.

Enter the new date and press ENTER to set.

3.9.5.

> *SETUP TIME*

Selecting the SETUP TIME function is displayed on the screen as follows:



```

SETUP TIME
CURRENT TIME: 14:27.

ENTER NEW TIME:  : .
  
```

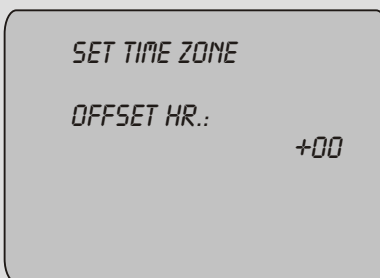
To change the time, enter digits in HH/MM format. Press ENTER to set the new time.

3.9.6.

> *SETUP ZONE*

By default, seal time zone settings are set to GMT (Greenwich Mean Time). If the User is located in a different time zone, an offset based on the time difference must be entered into the system. For example, the difference in Great Britain(GMT) is 0, in Egypt +2 and on the East Coast of the United States -5. When entering the offset time during the summer months, daylight saving time should be included in the calculation.

Selecting the SETUP ZONE function brings the following on the screen:



```

SET TIME ZONE

OFFSET HR.:           +00
  
```

Use the up/down scrolling arrows to set the desired offset. Press ENTER to set the offset.

3.9.7.

> *DISPLAY VERSION*

Selecting the DISPLAY VERSION function displays software version information.

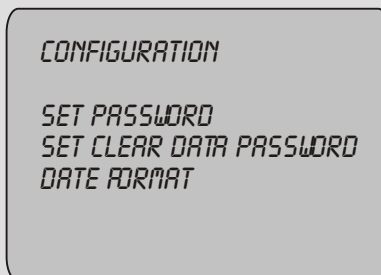


```
DATASEAL  
DATATERMINAL  
VERSION 2.0  
PRESS OK TO CONTINUE
```

3.9.8.

> *CONFIGURATION*

Selecting the CONFIGURATION function displays the User configuration menu:



```
CONFIGURATION  
  
SET PASSWORD  
SET CLEAR DATA PASSWORD  
DATE FORMAT
```

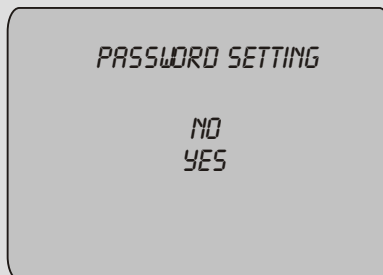
Use the up/down scrolling keys to scroll the options. Pressing the ENTER key selects the option.

3.9.8.1

> *SET PASSWORD*

This option allows the user to decide whether to use a password for seal SET protection, or to change an existing password.

Selecting the *SET PASSWORD* option displays the following on the screen:

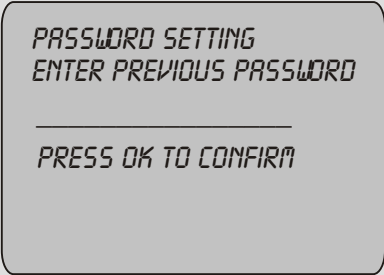


If the password is not to be used in the SET operation, select the NO option. To create a password or to change an existing one, select YES. The following appears on the screen:



Enter the new password (up to 6 digits) and press ENTER.

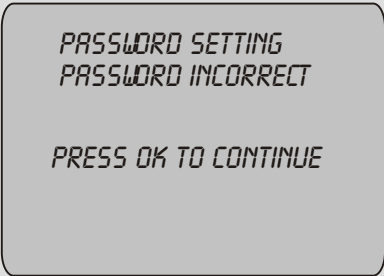
Any requested change to the password setting brings the following on the screen:



PASSWORD SETTING
ENTER PREVIOUS PASSWORD

PRESS OK TO CONFIRM

In case a wrong password has been entered, the following appears on the screen:



PASSWORD SETTING
PASSWORD INCORRECT

PRESS OK TO CONTINUE

If a wrong password has been entered, the entire password selection process must be repeated. If the User chooses to change the password, the following is displayed on the screen:



PASSWORD SETTING

ENTER NEW PASSWORD

PRESS OK TO CONFIRM

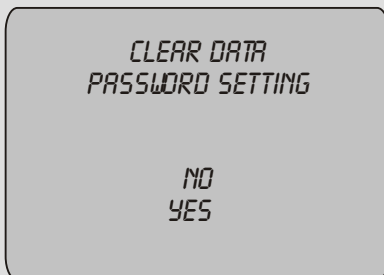
A new 6 digit password may now be entered.

3.9.8.2

>CLEAR DATA
PASSWORD

The CLEAR DATA PASSWORD option allows the User to decide whether to use a password to protect against database erasure or to change an existing password.

The following appears on the screen:

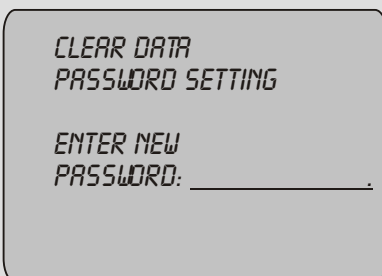


A screenshot of a screen with a light gray background and a black border. The text is in a monospaced font. It reads:

CLEAR DATA
PASSWORD SETTING

NO
YES

Selecting the YES option for the first time brings the following on the screen:

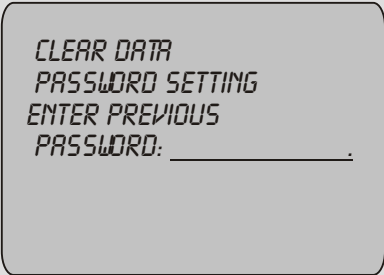


A screenshot of a screen with a light gray background and a black border. The text is in a monospaced font. It reads:

CLEAR DATA
PASSWORD SETTING

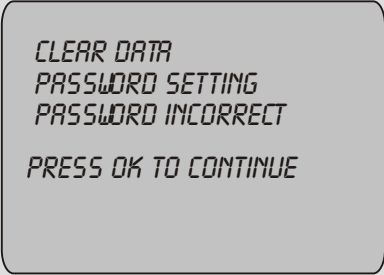
ENTER NEW
PASSWORD: _____.

Any requested change to the password setting is displayed on the screen as follows:



*CLEAR DATA
PASSWORD SETTING
ENTER PREVIOUS
PASSWORD: _____.*

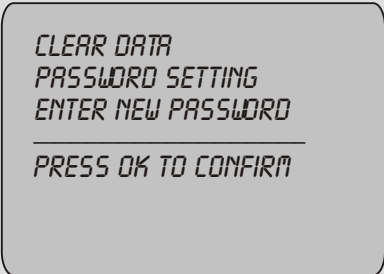
In case a wrong password has been entered, the following appears on the screen:



*CLEAR DATA
PASSWORD SETTING
PASSWORD INCORRECT

PRESS OK TO CONTINUE*

If a wrong password has been entered, the entire password selection process must be repeated. If the User chooses to change the password, the following appears on the screen:



*CLEAR DATA
PASSWORD SETTING
ENTER NEW PASSWORD

PRESS OK TO CONFIRM*

A new 6 digit password may now be entered.

3.9.8.3.
> *DATE FORMAT*

Selecting the > *DATE FORMAT* function brings the following on the screen:

SET DATE FORMAT

USA FORMAT
EUROPE FORMAT

USA format is: MM/DD/YY
European format is: DD/MM/YY

Choose the required format using the up/down arrow keys. Press ENTER to select the required option.

3.9.9.
> *VIEW ORG. ID LIST*

Choosing this function displays the list of organization ID nicknames on the screen.

ORG. LIST:

1. DEMO

3.9.10.
> *VIEW READER ID*

This function displays the DataTerminal's unique ID on the screen.

DATASEAL
TERMINAL ID:

26214557B

PRESS OK TO CONTINUE

3.9.11

> SYNCHRONIZE TIME

The seal's clock is likely to drift up to ± 8 minutes per quarter. To synchronize the seal clock, select > SYNCHRONIZE TIME. If the seal has already been synchronized, the following message appears:

SEAL TIME HAS ALREADY
BEEN UPDATED THIS
QUARTER

PRESS OK TO CONTINUE

If the clock drift has not been corrected, the User is prompted to add/subtract from the seal's current time.

SET NUMBER OF MINUTES
TO UPDATE SEAL TIME
USING THE UP/DOWN KEYS
+0

PRESS OK TO CONTINUE

After the process has terminated successfully, the following message appears:

PROCESS TERMINATED
SUCCESSFULLY

PRESS OK TO CONTINUE

Chapter 4

Software Utility Operating Instructions

4.1. Software Installation

- It is advisable to close all open programs prior to installation.
- Insert the Hi-G-Seal Installation CD into the CD drive.
- From the START menu,click on RUN and then on [disk drive]:/setup.exe. The program will begin installing.
- Follow the installation instructions as they appear on your screen
- By default, the Hi-G-Seal folder will be stored in the PROGRAM FILES folder.

4.2. Connecting the Terminal to the PC

- The DataSeal Terminal is connected to the PC via the RS-232 cable supplied.
- Connect the cable to the terminal jack at the bottom of the DataTerminal unit
- Connect the cable to the PC com port

4.3. Software Setup and Operation

- Create a shortcut to Hi-G-Seal.exe by dragging the Hi-G-Seal.exe icon from the program folder onto the desktop.
- To run the Hi-G-Seal program, double-click on theHi-G-Seal icon on the desktop.

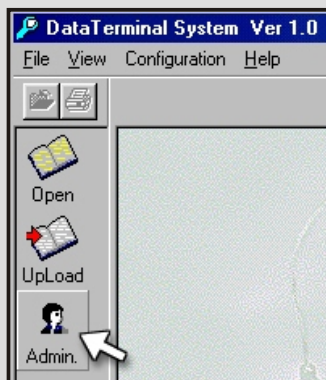
4.4. First Time Operation

Start the program by clicking on the Hi-G-Seal icon on the desktop or in Hi-G-Seal.exe. The main program screen is then displayed.

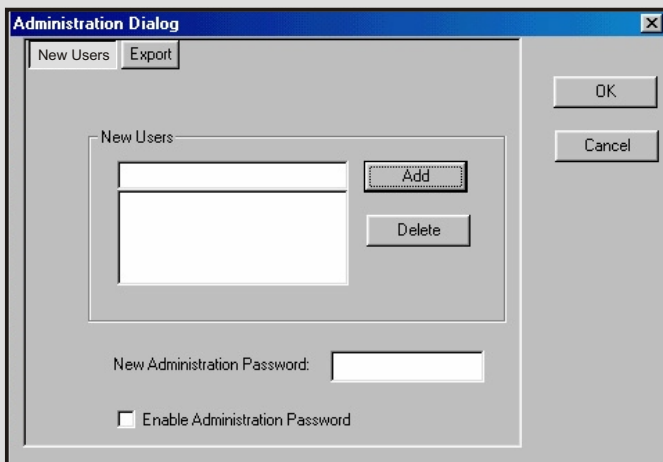


4.4.1. System Administration

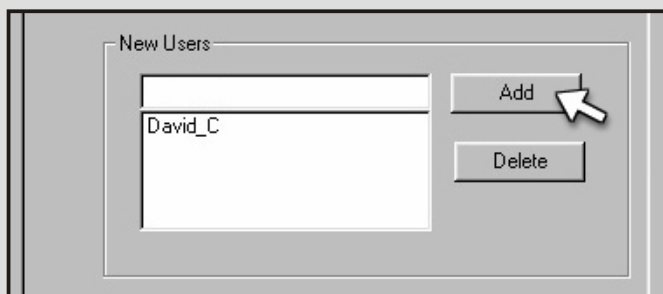
To start working with the program for the first time, click on the ADMIN. icon located on the left hand side of the main program screen.



The Administration Dialog screen appears.

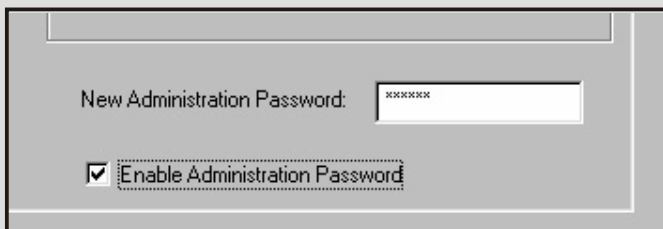


Insert a new user name and click on ADD. This will insert an authorized user name into the system's data-base.



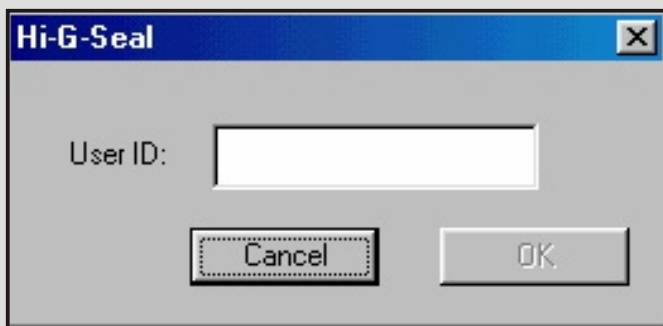
After the initial operation, every initialization will require an authorized user name.

If an administration password is to be used, insert the password in the NEW ADMINISTRATION PASSWORD box, and click to enable the administration password.

A screenshot of a software dialog box titled 'New Administration Password'. It features a text input field containing 'XXXXXX' and a checkbox labeled 'Enable Administration Password' which is checked. The dialog box has a standard Windows-style border with a title bar and a close button.

In this case, entry to the ADMIN. section of the program will require the administration password.

- Upon startup the User is required to insert an authorized user name.

A screenshot of a software dialog box titled 'Hi-G-Seal'. It features a text input field labeled 'User ID:' and two buttons at the bottom: 'Cancel' and 'OK'. The 'OK' button is currently disabled (grayed out). The dialog box has a blue title bar and a close button in the top right corner.

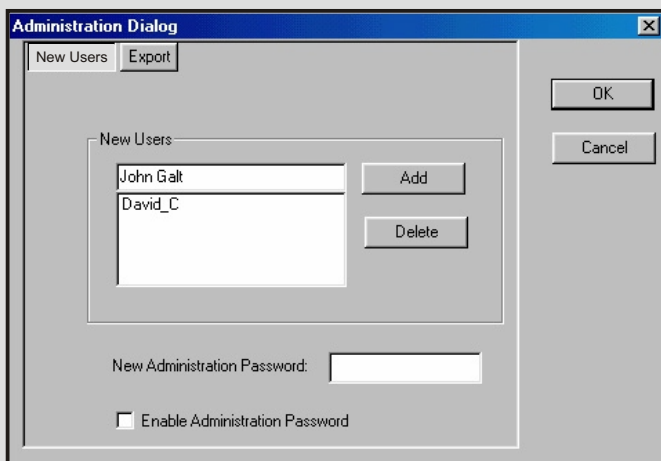
Once the correct name has been inserted, the OK button becomes active and allows the User to proceed.

- Clicking on the OK button brings the User to the main program screen.

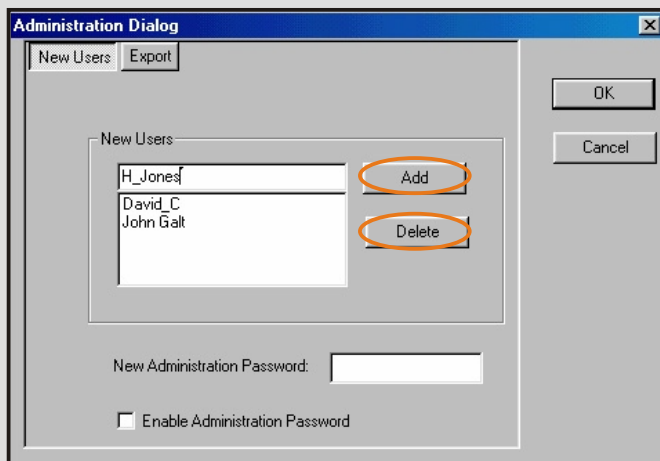


➤ Defining New Users.

To enter a new or additional user name, type the required name in the NEW USERS field of the administration dialog box and click on the ADD button.



Additional user names or IDs may be entered and existing ones deleted at all times by clicking on the ADD or DELETE buttons.



A correct user name must be entered upon initialization of the application. In the event an incorrect user name is entered, the application will reject the entry.

➤ ADMINISTRATION PASSWORD

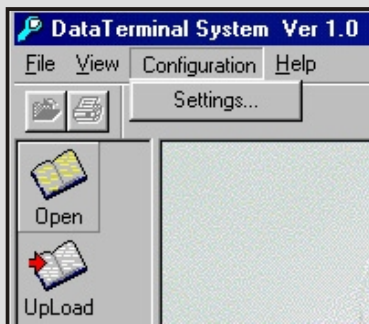
This feature enables the system administrator to create a password to prevent unauthorized downloading of the terminal software from the PC and from any unauthorized changes.



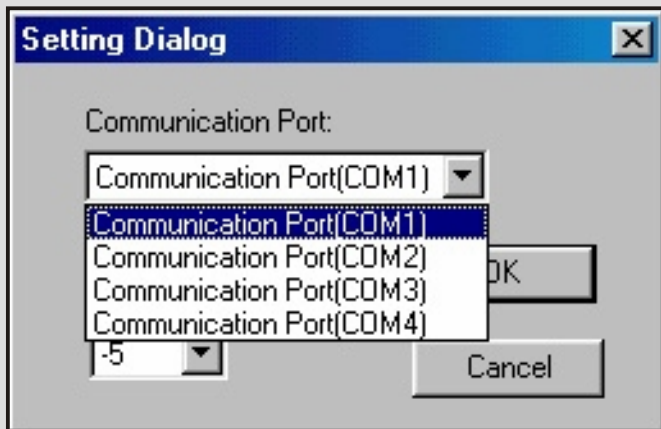
After inserting the password in the NEW ADMINISTRATION PASSWORD field, check the ENABLE ADMINISTRATION PASSWORD box to enable the option.

4.4.2. Setting Your Configuration Port

- To configure a communication port, click on the CONFIGURATION menu and then on SETTINGS.



- In the SETTING DIALOG box, choose a serial communicationport to which the DataTerminal - PC connector cable will be connected.



4.4.3. Setting Time Zone

- Use the TIME ZONE setting to indicate the time difference in hours between Greenwich Mean Time and the zone where the reader is to be used (for example: London 0, New York -7, Rome +1, etc.).

Note: When calculating time differences, care should be taken to include daylight saving time (summer/winter) parameters in the calculation.

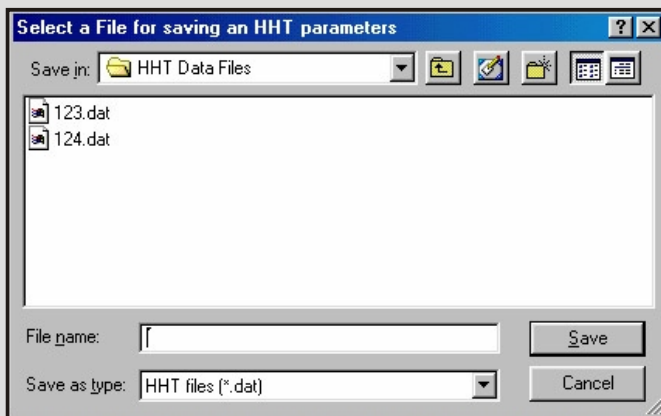
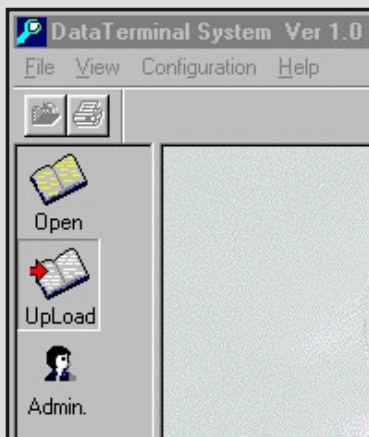


- Click on OK to confirm the data and to close the **SETTING DIALOG** box

4.5. File Upload

Click on the **UPLOAD** icon to upload the data from the DataTerminal to the PC.

- Connect the terminal to the PC with the designated RS232 communication cable. Ensure the cable is connected to the COM port selected in the config. operation
- Ensure the terminal is switched on and click on the UPLOAD icon. The SELECT A FILE FOR SAVING dialog box appears.



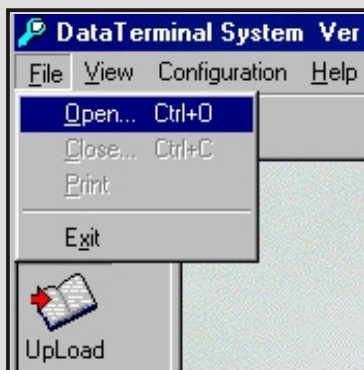
- Insert the a file name for the data retrieved from the terminal and click on SAVE.



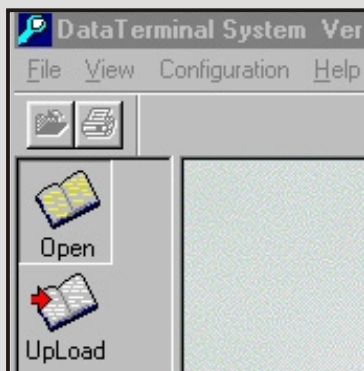
The UPLOADING DataTerminal EVENTS status screen appears, advising the user of the uploading status.

4.6. Viewing Data Files

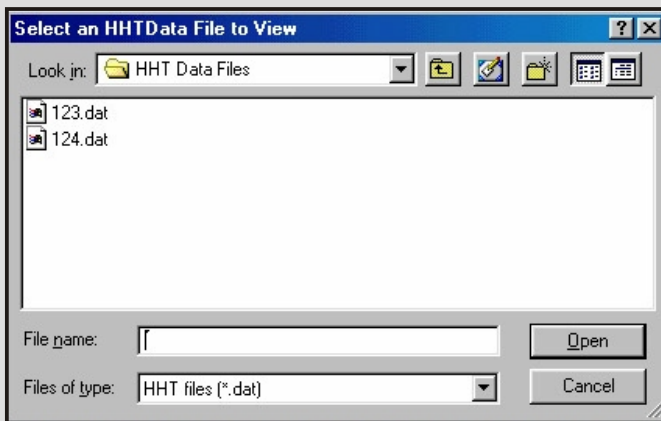
- Click on FILE on the program toolbar. The drop-down list allows the User to OPEN a file (Ctrl+O), CLOSE a file (Ctrl+C), to PRINT file data or to EXIT the program.



- In a similar manner, clicking on the OPEN icon situated on the upper left hand side of the main menu screen opens the SELECT FILE TO VIEW dialog box, which allows the user to choose the required file.

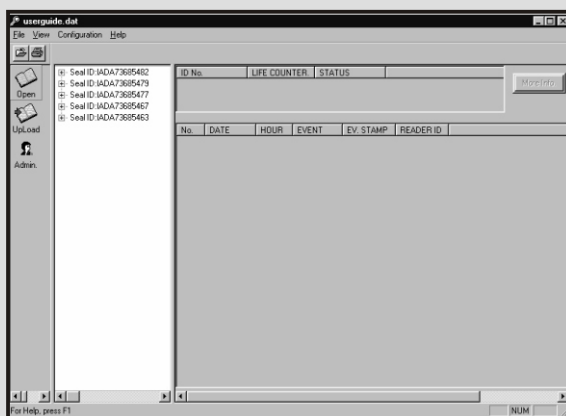


The View File dialog box containing the list of files in the program's memory appears.

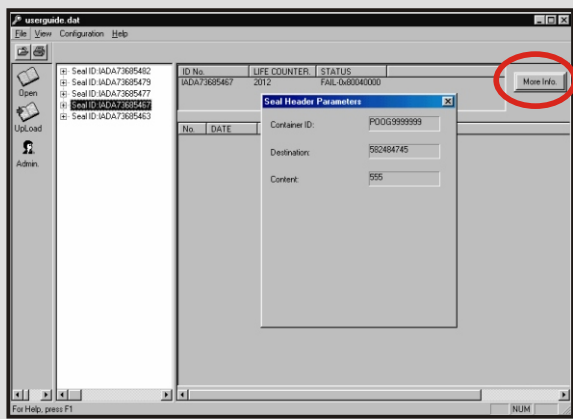


Click on a file name and then on OPEN to view file information.

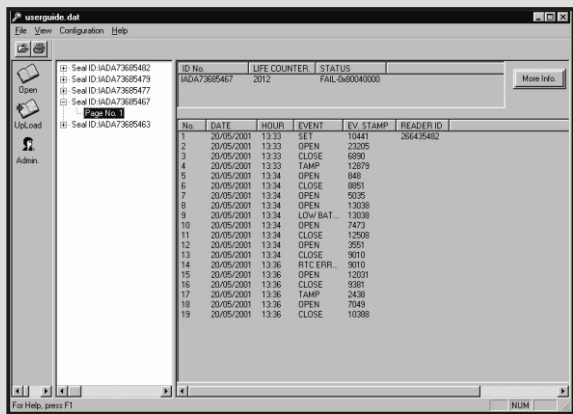
The SELECT FILE TO VIEW dialog box appears. To obtain information regarding a file stored in memory, click on a seal ID number.



For information regarding Seal Header Parameters, such as container ID, Destination and content of the container, click on the More Info button. This opens the Seal Header Parameters dialog box.



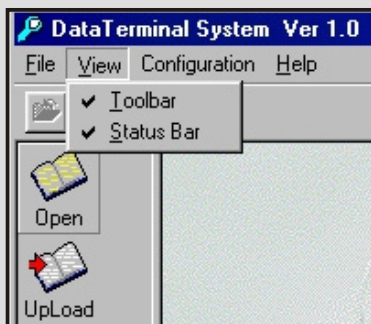
For information regarding an event occurrence on a specific seal, click on the + sign to the left of a seal ID number.



- Click on the FILE > CLOSE or Ctrl+C to close the file.



- Click on VIEW to open or close the toolbar and status bar. The toolbar is situated beneath the menu bar and allows the User to close or print the file with one click. The status bar is situated on the bottom of the program screen.



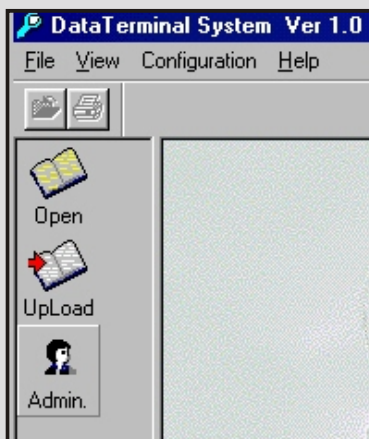
4.7. DataTerminal Software Upgrade

➤ EXPORT

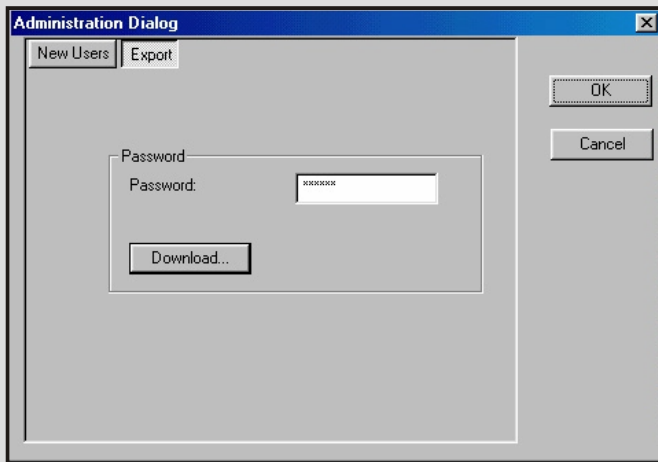
NOTE: The download operation erases all information stored in the terminal database. All information must be backed-up prior to beginning a download operation.

Prior to beginning this operation, ensure that the RS232 cable supplied with the system is connected to both the DataTerminal and the PC.

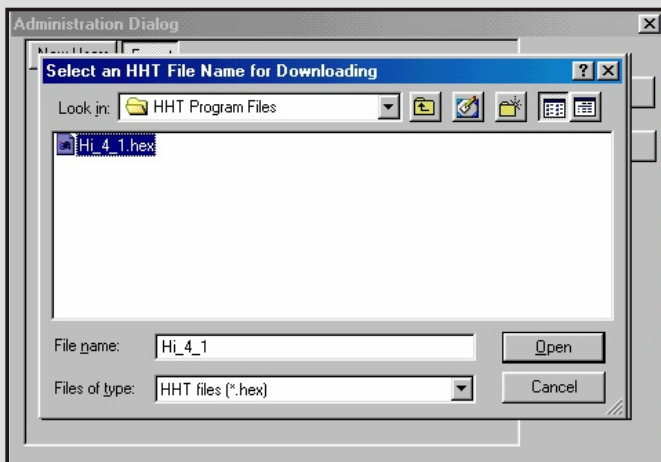
Click on the ADMIN.
icon to open the
ADMINISTRATION
DIALOG box.



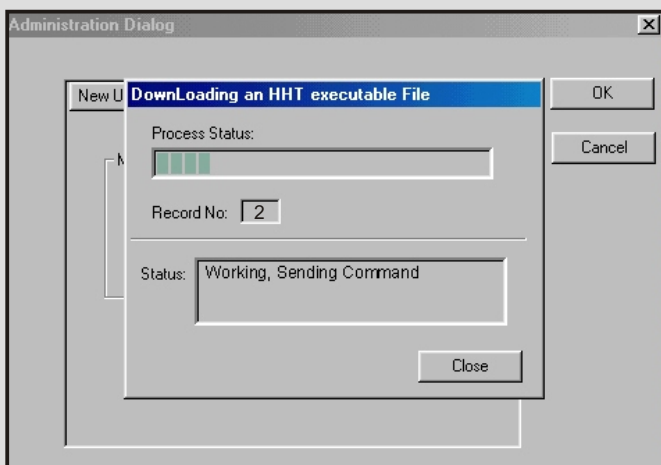
In the Administration Dialog Box, click on the EXPORT tab to download the DataTerminal software from the PC.



The download password must be entered in order to proceed. Enter the factory-set password in the PASSWORD field (QPWOEI in upper case letters). Once the correct password has been entered, the DOWNLOAD button becomes active. Click on the button to display the FILE DOWNLOAD dialog box.



Click on the DOWNLOAD button. Select the *.hex file you want to download from the file list in the dialog box and click on OPEN to proceed.



Verify that the downloading process is in progress. Click on CLOSE when the process is complete.

Chapter 5

Troubleshooting and Problem Solving

5.1. Low Voltage

Upon initialization:

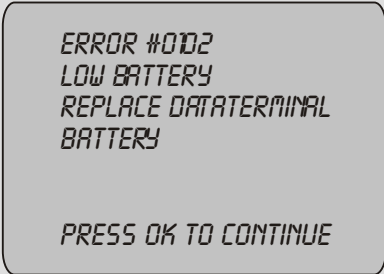
If the **DataTerminal** is low on power when switched on, the following warning message appears on the screen:



LOW BAT

During Operation:

If the **DataTerminal** runs low on power during operation, the following message appears, followed by a long beep:



*ERROR #002
LOW BATTERY
REPLACE DATATERMINAL
BATTERY*

PRESS OK TO CONTINUE

Press OK to continue and turn the DataTerminal off.
Replace the batteries as described in section 3.1.

5.2. Terminal Failure

The **Hand-Held Terminal** performs an automatic self-test upon initialization. If there is any technical problem at this stage, the following message appears on the screen:

ERROR #001

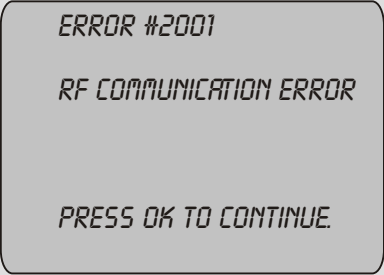
*TERMINAL FAILED
CALL SERVICE*

PRESS OK TO CONTINUE

If this occurs, call an authorized service center or send the device to the manufacturer.

5.3. RF Communication Failure

If there is a communication error between the **Hand-Held Terminal** and the seal, the following message appears on the screen:



ERROR #2001

RF COMMUNICATION ERROR

PRESS OK TO CONTINUE.

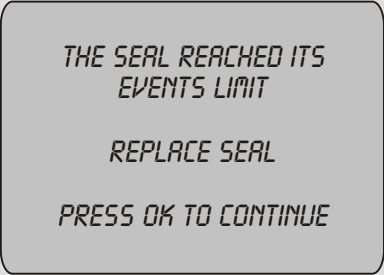
If this occurs, try the following:

- Decrease the distance between DataTerminal and seal
- Change the angle between the DataTerminal and the seal (the optimum angle is when the DataTerminal is below and parallel to the seal)
- Try and communicate with another seal
- Replace the batteries in the DataTerminal

If all attempts at remedying the fault(s) have failed, call an authorized service center.

5.4. Seal Failure

When the seal has reached its maximum LIFE COUNTER, the following message will appear on the screen:



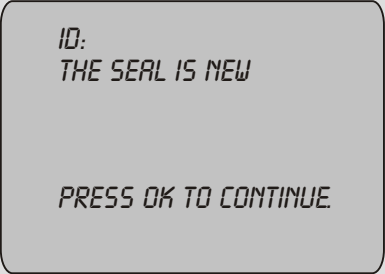
THE SEAL REACHED ITS
EVENTS LIMIT

REPLACE SEAL

PRESS OK TO CONTINUE

The seal must be replaced.

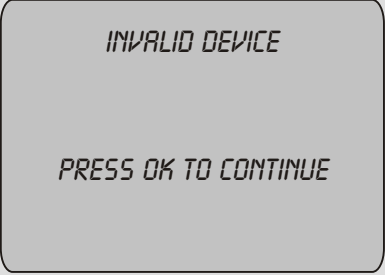
If the seal has not been SET, the following message appears on the screen during a READ or VERIFY operation:



*ID:
THE SEAL IS NEW

PRESS OK TO CONTINUE*

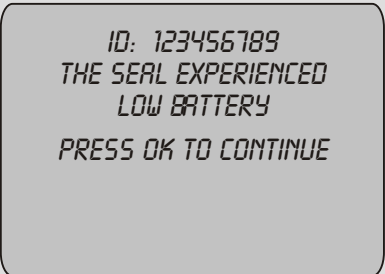
If the seal cannot be read, the following message will appear on the screen:



*INVALID DEVICE

PRESS OK TO CONTINUE*

If the seal battery is low during the reading process, the screen will read:

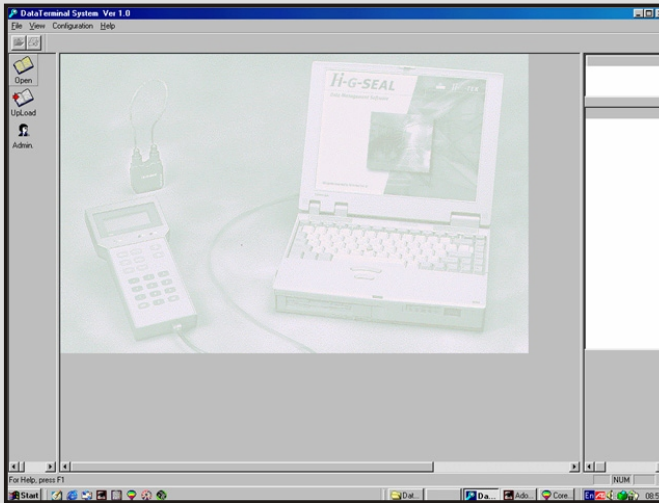


*ID: 123456789
THE SEAL EXPERIENCED
LOW BATTERY

PRESS OK TO CONTINUE*

5.5. System Setup

Some problems may occur if your computer system setup is not compatible with program requirements. For instance, if screen resolution is greater than the required 800*600 pixels, the program screen will appear as below:



Despite the visual incompatibility, the screen resolution will not interfere with the program.

Chapter 6

Technical Specifications

6.1. DataTerminal 125 kHz IG-MA-31/IG-MA-32

DataTerminal	IG-MA-31	IG-MA-32
Physical Characteristics		
Dimenisons [mm]	210x100x45	
Weight[gr]	500	
Power requirements	4xAA Size 1.5V Alkaline batteires	
Memory	190 Seals @55events per Seal	
Performance Characteristics		
Interface	RS232	
Operating Frequency [KHz]	125	
Output power [dbuv/m]	110 @ 3m	
Read Range	40	
RFID Frequency (MHz)	-	13.56
Environmental Conditions		
Operating Temperature [°C]	-20 to +70	
Storage Temperature [°C]	-20 to +70	
Humidity [%]	50 Non Condensing	
Mechanical Vibration & Shock	Hand carried	

6.2. DataSeal IG-RS-40-916/433/318/315

DataSeal	IG-RS-40-916	IG-RS-40-433	IG-RS-40-318	IG-RS-40-315
Physical Characteristics				
Dimensions (mm)	49X37X85			
Weight (gr)	100			
Housing	Plastic reinforced with fiberglass			
Power Requirements (volts)	3.6 internal battery			
User Memory (Bytes)	2048			
Events Memory (events)	10			
Performance Characteristics				
Interface	Mounting Cradle P.N. IG-DH-40			
Operating Frequency (MHz)	916.5	433.92	318	315
Read Range (m)	30 @ open space			
Operating Frequency (kHz)	125			
Read Range (cm)	50			
Environmental Conditions				
Operating Temperature (°C)	-40 - +70			
Storage Temperature (°C)	-40 - +70			
Humidity (%)	90 non condensing			
Mechanical Vibration	As per MIL-810D & SAE J1455			
Mechanical Shock	As per MIL-810D & SAE J1455			
Standards				
	FCC part 15			
Antenna Characteristics				
Beam Divergence	Omni-directional on non-metal wall. Hemisphere on metal wall.			
Polarization	Vertical			

6.3. Magnetic DataSeal IG-RS-40M-916/433/318/315

Magnetic DataSeal	IG-RS-40M-916	IG-RS-40M-433	IG-RS-40M-318	IG-RS-40M-315
Physical Characteristics				
Dimensions (mm)	49X37X65			
Weight (gr)	100			
Housing	Plastic reinforced with fiberglass			
Power Requirements (volts)	3.6 internal battery			
User Memory (Bytes)	2048			
Events Memory (events)	10			
Performance Characteristics				
Operating Frequency (MHz)	916.5	433.92	318	315
Read Range (m)	30 @ open space			
Operating Frequency (kHz)	125			
Read Range (cm)	50			
Environmental Conditions				
Operating Temperature (°C)	-40 - +70			
Storage Temperature (°C)	-40 - +70			
Humidity (%)	90 non condensing			
Mechanical Vibration	As per MIL-810D & SAE J1455			
Mechanical Shock	As per MIL-810D & SAE J1455			
Standards				
	FCC part 15			
Antenna Characteristics				
Beam Divergence	Omni-directional on non-metal wall. Hemisphere on metal wall.			
Polarization	Vertical			

Contact Information



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