User's Guide

OM-VLT
Temperature Data Logger
with Built-In Printer

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CHAPTER 1   INTRODUCTION

The OM-VLT Temperature Recorder records, saves, and prints up to 290 temperature readings at predefined intervals. The OM-VLT produces an alarm whenever the temperature goes above or below a defined range. The alarm can be produced immediately when the temperature goes out of the defined range, or after the temperature remains out of range for a certain period of time. The OM-VLT provides several printing options, including the ability to send data to an external PC. The OM-VLT can also send alarms to an external device via a relay contact.

The OM-VLT can monitor, log, and print temperatures of -40°C to +130°C (-40°F to +266°F), +\- 1°.

FEATURES

Table 1 describes the OM-VLT features, with references to the section and page in this manual describing how to use or configure the feature.

Table 1: OM-VLT Temperature Recorder Features

FEATURE	FOR FURTHER INFORMATION SEE
Records temperatures at intervals of between one and 90 minutes	*Changing the Sampling Rate* on page 22
Produces an alarm if the temperature goes above or below a predefined range	*Configuring the Alarm Range* on page 16
Records and displays temperatures in either Celsius or Fahrenheit, and date in European or English (American) format	*Configuring Temperature and Date Formats* on page 19
Records and prints 290 readings on request at any time	*Printing* on page 11
Three printing formats, including graphic or text, and ID number, time, temperature, and alarm status	*Configuring Print Settings* on page 18
Audio and visual alarms, including an option for sending alarms to an external device	*Alarms* on page 12 and *Optional Connections* on page 7
Option to export data to external PC	*Viewing Information on an External PC* on page 7
Optional backup battery for up to 60 hours	*Battery Installation and Replacement* on page 9

DESCRIPTION

Figure 1 shows the front and top of the OM-VLT.
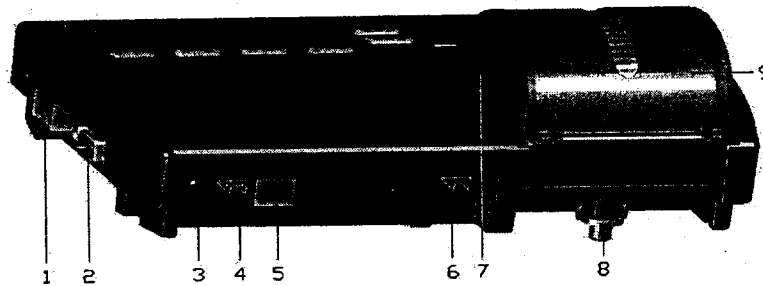
Figure 1: OM-VLT Temperature Recorder - Front/Top View

1. Power switch
2. RS-232 port
3. 12V power jack
4. Buzzer silent contacts
5. Temperature sensor input jack
6. Remote alarm contacts
7. Paper cover clip
8. Secure to the bracket
9. Paper cover

Figure 2 shows the rear and bottom of the OM-VLT.
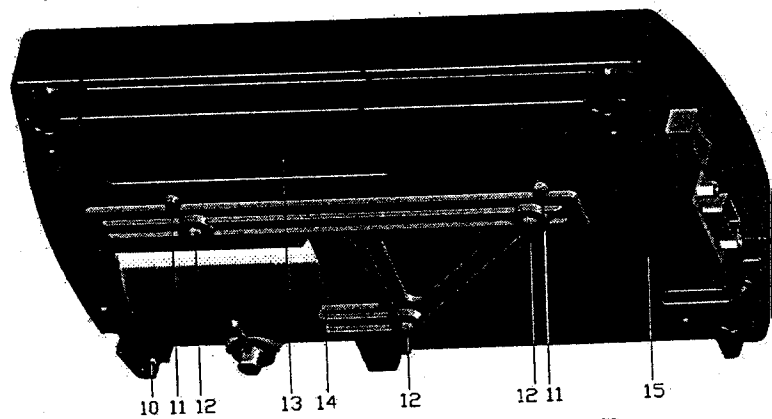
Figure 2: OM-VLT Temperature Recorder - Rear View

10. Secure tie hole
11. Hanging hole
12. Bracket hanging hole
13. Batteries cover
14. Bracket mounting
15. Buzzer alarm grill

Figure 3 shows the display area of the OM-VLT.
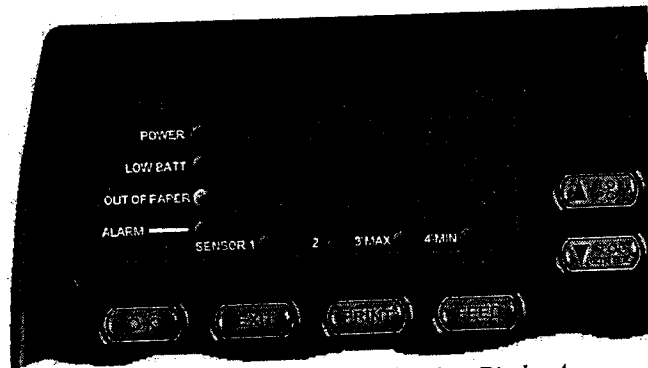
Figure 3: OM-VLT Temperature Recorder - Display Area

CHAPTER 2   INSTALLATION

This chapter explains how to install the OM-VLT, and includes the following topics:

▲ **Package Contents** – Lists the contents of the OM-VLT package.

▲ Error! Reference source not found. – Describes the possible ways to install the OM-VLT, and describes how to attach the OM-VLT to a wall bracket.

▲ **Connections** – Describes the mandatory and optional cable connections, including instructions on how to start the OM-VLT.

▲ **Power** – Describes the OM-VLT's power requirements and backup battery operation capability, and explains how to install or replace batteries.

PACKAGE CONTENTS

The OM-VLT package should include the following components:

Table 2: Package Contents

DESCRIPTION	QUANTITY	PART NUMBER
OM-VLT unit with one temperature channel	1	
Waterproof, remote 33 feet temperature sensor cord (10 meters)	1	OM-VLT-SENSOR
Thermal paper roll, 2 inches wide, 131 feet long (40 meters)	2 (1 installed)	OM-VLT-PAPER
12V AC power adaptor - US (115V)	1	OM-VLT-115-ADAPTOR
3.6V Lithium battery (CR2032)	1 (installed)	OM-VLT-BAT
Hanging bracket	1	OM-VLT-BRKT
User's Guide	1	
Bracket mounting screws	3	
Bracket securing screw	1	

INSTALLATION OPTIONS

You can use the OM-VLT as a standalone unit or attach it to a wall. There are two ways to attach the OM-VLT to a wall:

▲ **Direct Mounting** – Attach the OM-VLT directly to the wall.

▲ **Bracket Mounting** – Attach the OM-VLT bracket to the wall, and hang the OM-VLT on the bracket, as described below.

Bracket Mounting

To attach the OM-VLT to the wall using the bracket:

1. Mount the OM-VLT bracket to the wall with three screws, as shown in Figure 4.
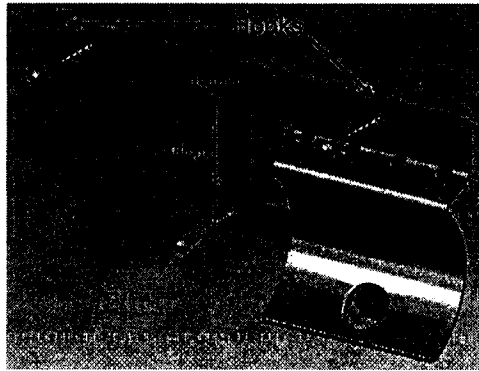
Figure 4: Bracket Mounting

Note: Make sure to leave enough space on the left to operate the main switch and connect all the other cables mentioned in *Connections* on page 6.

2. Hang the OM-VLT on the two mounted bracket hooks, as shown in Figure 4.

3. Open the paper cover by pushing the two cover clips (item 7 in Figure 1) to the inside and pulling the cover out.

4. Fasten one screw through the hole under the paper roll to secure the OM-VLT to the bracket, as shown in Figure 5.

5. Return the paper cover to its place.
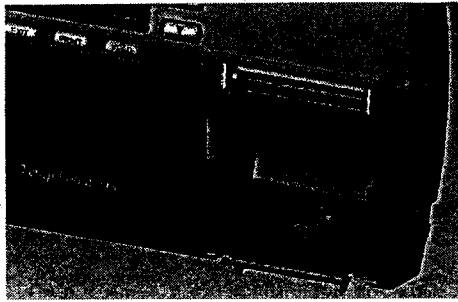
Figure 5: Securing the Unit to the Bracket

CONNECTIONS

This section describes the cables you must connect in order to use the OM-VLT, as well as cables you can attach in order to use optional features.

Mandatory Connections and Startup

To connect and start up the OM-VLT:

1. Plug the AC adaptor into the power supply and connect the 12V power cord to the power jack (item 3 in Figure 6).

2. Connect the temperature sensor cord to the temperature sensor input jack (item 5 in Figure 6).

3. Switch the power switch to the On position (item 1 in Figure 6). The Power and Sensor LEDs turn green. After a few moments, the temperature should appear in the display area.
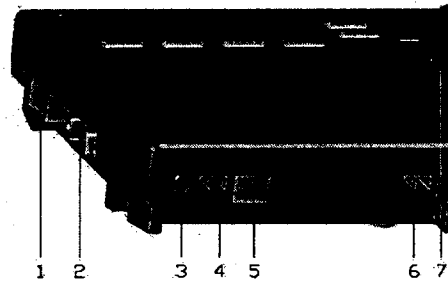
Figure 6: Connections

Optional Connections

You can connect the following optional cables:

▲ To send alarms to a remote device, attach a cable to the remote alarm contacts (item 6 in Figure 6). The remote alarm contacts are a pair of ¼" terminals, 1 Amps, 12V.

▲ To export temperature data to a PC, attach an RS-232 cable from the PC to the RS-232 port (item 2 in Figure 6).

▲ To silence the alarm, connect a remote buzzer silencing device by attaching a cable with a momentary switch to momentarily short the buzzer silencer contacts (item 4 in Figure 6). The buzzer silencer contacts are a pair of ¼" terminals.

Viewing Information on an External PC

Before you can view information from the OM-VLT on an external PC, you must establish a new Hyper Terminal connection on the PC.

Note: If you have already established a Hyper Terminal connection on your PC, skip to *Viewing Information on an External PC* on page 8.

Establishing a New Hyper Terminal Connection

To establish a new Hyper Terminal connection on your PC:

1. Connect an RS-232 cable from the PC to the RS-232 port (item 2 in Figure 6).

2. On the PC, open Hyper Terminal. To open Hyper Terminal, select **Start>Programs>Accessories>Communications>HyperTerminal** and double-click **HYPERTRM.EXE**.

Note: If Hyper Terminal is not installed on your computer, you can install it from the Control Panel. Double-click **Add/Remove Programs**, click the **Windows Setup** tab, select **Communications**, click **Details**, select **Hyper Terminal**, click **OK**, then click **OK** again.

3. Enter a name for the OM-VLT connection.

4. Select an icon and click **OK**.

5. In the **Connect to** window, go to the lower **Connect using:** menu and select **Direct to Com1** (making sure to choose a free Com port).

6. Click **OK**. If the Com port is not free, choose another port by selecting **File**>
   Properties> and selecting the corresponding COM port, and then click **OK**.

Note: Configure the COM properties as follow: **Bits per second - 9600;**
         Data bits - 8; Parity - None; Stop bits - 1; Flow control - None,

Viewing Information on an External PC

To view information from the OM-VLT on an external PC:

1. Connect an RS-232 cable from the PC to the RS-232 port (item 2 in Figure 6).

2. On the PC, open the OM-VLT Hyper Terminal connection program. To open it,
   select **Start**> **Programs**> **Accessories**> **Communications**> **HyperTerminal**
   and double-click the OM-VLT Hyper Terminal icon that you previously created
   (refer to *Establishing a New Hyper Terminal Connection* on page 7).

The OM-VLT Hyper Terminal window on the PC displays message lines
according to the sampling rate. The Hyper Terminal displays whatever
information the OM-VLT prints, both manually and automatically. For
information on printing manually, refer to *Printing* on page 11. For information
on printing automatically, refer to *Configuring Print Settings* on page 18.

Notes: To capture lines one after the other, select **File**> **Properties** and
         select the Setting tab. Under **ASCII Setup**, select **Append line feed**
         to incoming line ends.

         To capture the data to a file, select **Transfer**> **Capture Text**. Enter
         the file name and click **Start**.

         When the print format is configured as graph, only the current
         temperature and the alarm range appear in Hyper Terminal. On
         every 12th row, the data is displayed in full text format.

POWER

This section explains the OM-VLT's power requirements and backup battery
operation capability, and explains how to install or replace batteries.

Power Source

The OM-VLT uses a 12V AC/DC power supply. When the OM-VLT is using
the main power supply, the Power LED is lit green.

In the event of a power failure, or if the working environment temperature goes over 150°F (65°C), the OM-VLT automatically switches over to a 9V backup battery (if installed). When operating in backup mode, the OM-VLT logs temperature measurements to memory, but does not print. The Power LED blinks, and the display area shows the current temperature every 30 sec. for two seconds. You can also display the current temperature for two seconds at a time manually by pressing ⊙⊙. With a new 9V battery, the OM-VLT can operate in backup mode for 60 hours.

When the main power returns, the Power LED goes on without blinking, and the printer prints the temperature measurements that were recorded but not printed when the OM-VLT was operating in backup mode.

Battery Installation and Replacement

The OM-VLT uses two batteries:

▲ **Lithium battery (CR2032)** – Used for saving logging data and configuration settings, and for running the real-time clock. After replacing the Lithium battery, you should check and reset the OM-VLT configuration settings.

▲ **9V alkaline backup battery** – Used for backup operation (refer to *Power Source* on page 8). This battery is optional, and is not included with the OM-VLT package. When the Low Batt LED blinks, you should replace the 9V backup battery.

To change or install batteries:

1. Push and slide the cover of the battery compartment out, as shown in Figure 7.

2. Install the batteries as indicated, according to the polarity marks in the battery compartment.

3. Position the cover over the battery compartment and snap it back into place.
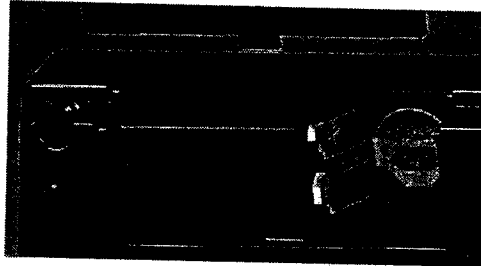
Figure 7: Battery Installation and Replacement

CHAPTER 3   OPERATION

This chapter explains how to operate the OM-VLT, and includes the following topics:

▲   **Displaying Temperatures**

▲   **Printing**

▲   **Advancing and Changing Printer Paper**

▲   **Alarms**

DISPLAYING TEMPERATURES

When the OM-VLT is on, it displays the current temperature. You can also display the maximum and minimum measured temperatures in the OM-VLT's memory by pressing ▲ and ▼. The OM-VLT's memory can store up to 290 readings. The time period this covers depends on the sampling rate. For example, if the sampling rate is 15 minutes, the OM-VLT's internal memory contains the temperature data from the last three days.

▲   Press ▲ to display the lowest temperature in memory. Press ▲ again to display the highest temperature in memory, **AdJ** (for adjusting parameters), and to return to the current temperature. After three seconds, the display automatically returns to the current temperature.

▲   Press ▼ to display **AdJ** (for adjusting parameters). Press ▲ again to display the highest temperature in memory, the lowest temperature in memory, and to return to the current temperature. After three seconds, the display automatically returns to the current temperature.

Note: You can configure the OM-VLT to display temperatures in either Celsius or Fahrenheit. Refer to *Configuring Temperature and Date Formats* on page 19.

PRINTING

The OM-VLT can be configured to print temperatures automatically at defined intervals. For a description of the available print modes and instructions on configuring the print settings, refer to *Configuring Print Settings* on page 18.

In addition, you can manually print the memory report (a list of all saved measurements) on demand, or send the report to a PC to view and save the information. To send the memory report to the printer or a PC, press ⌈PRINT⌉. SEnd appears in the display area.

▲ To print the memory report, press ⌈▼⌉.

▲ To send the memory report to a PC, press ⌈▲⌉.

▲ If you do not press either button within three seconds, the display automatically returns to the current temperature.

The OM-VLT prints or sends the memory report in whichever print mode is currently configured. If the OM-VLT is also configured to print or send measurements automatically, then when the printing is finished, the OM-VLT prints or sends all measurements that were recorded during the on demand memory report printing or sending operation.

Every report that is printed or sent on demand begins with the message *MEMORY REPORT* and ends with the message *END OF REPORT*. The printed or sent on demand report displays the measurements in reverse order (i.e., current measurements are displayed before the earlier measurements).

To manually stop printing or sending a report on demand, press ⌈EXIT⌉. The printout or sent report displays the message *MEMORY REPORT STOPPED BY USER*.

Note: When you send a report to a PC, all data is sent within ten seconds.

ADVANCING AND CHANGING PRINTER PAPER

The OM-VLT uses thermal printing paper to print temperature readings. This type of paper uses heat, rather than ink, to print. The OM-VLT's printer does not print on ordinary paper. When ordering replacement paper rolls, make sure to order thermal paper.

When a red mark appears on the side of the paper, this indicates that the paper roll is almost finished. You should replace the paper roll before it reaches the end, so that the printer paper will not stop or get stuck.

To replace the paper roll:

1. Press ⦅FEED⦆ two or three times to advance the paper.

Note: The ⦅FEED⦆ button does not work unless the printer is set for automatic printing. Refer to *Configuring Print Settings* on page 18.

2. Tear out the latest printed report.

3. Open the paper cover and remove the leftover paper roll. The alarm buzzer will sound, and the Out of Paper LED will blink.

4. Straighten the edge of the new paper roll with a scissors.

5. Place the new paper roll in the paper compartment, or inside the open paper cover, and push the edge of the paper straight through the printer under the printer's black rubber roller.

6. Press ⦅FEED⦆ to advance the paper through the printer. After installing the new roll, the alarm buzzer and the Out of Paper LED should go off.

ALARMS

The OM-VLT has the following alarm indicators:

▲ **Buzzer** – Some alarms trigger an internal buzzer. You can silence the buzzer by pressing ⦅EXIT⦆ or on the optional remote buzzer-silencer switch. Refer to *Optional Connections* on page 7. You can also configure the OM-VLT so that the buzzer does not go on. Refer to *Configuring the Alarm Output* on page 16.

Note: The buzzer silencer only shuts off the internal buzzer sounds. The alarm LEDs and the external device connected to the relay contact (if enabled) remain operational.

▲ **LEDs** – The four LEDs to the left of the display area indicate various alarms, as described below. The top LED indicates that the OM-VLT's power is on.

▲ **Relay Contact to External Device** – You can connect the external device to the OM-VLT remote alarm contacts (item 6 in Figure 6 on page 6) and configure the OM-VLT to send alarms to the external device via a normally open relay contact. Refer to *Configuring the Alarm Output* on page 16.

The following events trigger an alarm:

▲ **Disconnected Temperature Sensor** – If the temperature sensor is disconnected from the OM-VLT, the display area shows the message **nOS**, the Alarm LED lights, and the internal buzzer sounds (if enabled).

▲ **Alarm Range** – If the measured temperature goes outside the maximum or minimum defined temperature range for a consecutive period of time equal to the defined alarm delay period (if any), an alarm is sent. The internal buzzer sounds (if enabled), and an alarm is sent to an external device via the relay contact (if enabled). In addition, the Alarm LED lights. For instructions on configuring the buzzer and relay contact to respond to Alarm Range alarms, refer to *Configuring the Alarm Output* on page 16.

▲ **End of Paper** – If the printer paper runs out, the internal buzzer sounds (if enabled), and an alarm is sent to an external device via the relay contact (if enabled). In addition, the Out of Paper LED lights. For instructions on configuring the buzzer and relay contact to respond to Out of Paper alarms, refer to *Configuring the End of Paper Alarm* on page 17.

Figure 8 provides a close-up of the rear panel, including the remote alarm contacts on the right side and the remote buzzer silencing device contacts on the left side.
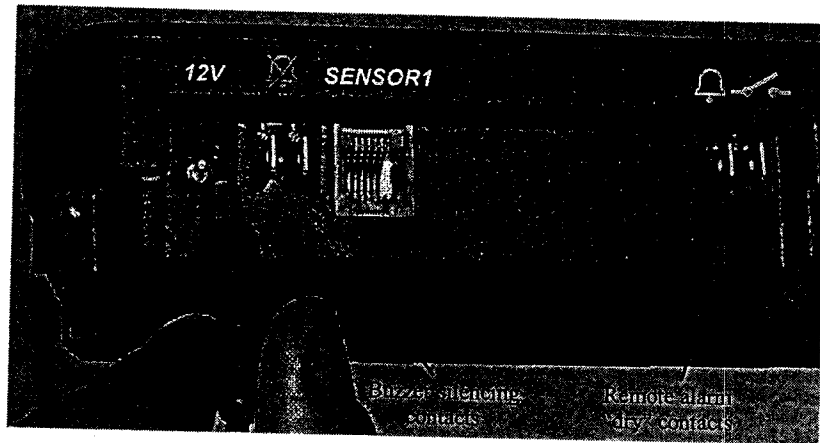
Figure 8: Rear Panel Close-Up

CHAPTER 4   CONFIGURATION

This chapter explains how to configure the OM-VLT. To configure OM-VLT parameters, you must enter a password. The default password is ⬆️ ⬇️ OK EXIT. For instructions on changing your password, refer to *Changing the Password* on page 20.

To change the OM-VLT configuration:

1. Press ⬆️ or ⬇️ until **AdJ** appears in the display area.

2. Press **OK**. **PASS** appears in the display area.

3. Enter your password. **ALr** appears in the display area. **ALr** allows you to change the alarm settings.

4. The OM-VLT has nine root menu items. To scroll through the root menu items, press ⬆️. To scroll through the root menu items in reverse order, press ⬇️. The following are the root menu items:

   ▽   **ALr** – Alarm configuration

   ▽   **Prn** – Printing configuration

   ▽   **SCAL** –Temperature units and date format configuration

   ▽   **CLoC** – Date and time configuration

   ▽   **ChPA** – Change password

   ▽   **SIdn** – ID number configuration

   ▽   **CALb** – Temperature calibration

   ▽   **Lo9r** – Erasing the logging measurements from the memory

   ▽   **SAPr** – Sampling rate configuration

   Note: For a full diagram of the OM-VLT menu tree, refer to Appendix D, *Menu Structure* on page Error! Bookmark not defined.. For a list of the default factory settings, refer to Appendix A, *Factory Default Settings* on page 24.

5. When you reach the root menu item that you want, press **OK**. The first sub-menu item appears.

6. When you have finished configuring an item, you must press **EXIT** to save the configuration changes.

ONLINE HELP

The OM-VLT offers online help that explains the short format display massages and guides you through the menu configurations.

1. Open the paper cover to best view the printed online help messages.

2. If you want help on any menu item, press ⟦PRINT⟧. The OM-VLT will print and/or send the online help message in whichever format is currently configured (as described in *Configuring Print Settings* on page 18).

Note: The ⟦PRINT⟧ key can be used to access the online help in all situations, except while the current temperature is being displayed.

3. The OM-VLT prints and/or sends a blank line after every online help message.

Notes: You cannot print online help unless the printer is set for automatic printing. Refer to *Configuring Print Settings* on page 18.

         If the OM-VLT is configured to send output to an external PC, help messages will also be sent to the external PC.

CONFIGURING ALARM SETTINGS

To configure alarm settings, display the **ALr** root menu. From the **ALr** root menu, you can configure the following alarm settings:

▲ **Alarm Range Set (ALS)** – Allows you to define a temperature range. When the current temperature is outside of this range, the OM-VLT sends an alarm.

▲ **Alarm Delay (ALdl)** – Allows you to define an alarm delay. If the current temperature goes out of the defined temperature range, the OM-VLT does not send an alarm until the temperature remains outside of the range for the length of time defined by the Alarm Delay parameter.

▲ **Alarm Output (ALO)** – Allows you to define whether or not the OM-VLT's internal alarm sounds when an alarm is sent, and whether or not alarms are sent to an external device.

▲ **End of Paper Alarm (EOFP)** – Allows you to define whether or not the OM-VLT's internal alarm sounds, and whether or not alarms are sent to an external device, when the paper runs out.

Configuring the Alarm Range

To configure the high and low temperatures that will trigger an alarm:

1. From the ALr menu, press OK. ALS appears.

2. Press OK. LoA1 appears. Press △ or ▽ to set the minimum temperature. Temperatures below this temperature will trigger an alarm.

3. Press OK. HIA1 appears. Press △ or ▽ to set the maximum temperature. Temperatures above this temperature will trigger an alarm.

4. Press EXIT. The changes are saved and ALS appears.

   ∇   To change other alarm settings, press △ or ▽ to display the other alarm menu items.

   ∇   To go to another root menu item, press EXIT again, then press △ or ▽ to display the other root menu items.

   ∇   To exit configuration and display the current temperature, press EXIT twice.

Configuring the Alarm Delay

To configure the alarm delay:

1. From the ALr menu, press OK. ALS appears.

2. Press △. ALdl appears.

3. Press OK. The current alarm delay setting appears.

4. Press △ or ▽ to scroll among the possible alarm delay values: n0 (no delay), 10 (minutes), 30 (minutes), 1 h (1 hour), and 2 h (2 hours). When the value you want to select appears, press OK. ALdl appears.

5. Press EXIT. The changes are saved and ALr appears.

6. Press EXIT again to exit configuration and display the current temperature.

Configuring the Alarm Output

To configure the alarm output:

1. From the ALr menu, press OK. ALS appears.

2. Press △ or ▽ twice. ALO appears.

3. Press ⟨OK⟩. The current alarm buzzer setting appears:

    ▽   **buOn** – The internal buzzer will sound when there is an alarm.

    ▽   **buOF** – The internal buzzer will not sound when there is an alarm.

4. To keep the current setting, press ⟨OK⟩. To change the setting, press ⟨▲⟩ or ⟨▼⟩ to toggle the setting, then press ⟨OK⟩. The current external Normally Open contact device setting appears:

    ▽   **CoOn** – The external Normally Open contact is closed and a signal is sent to the external device when there is an alarm.

    ▽   **CoOF** – A signal is not sent to the external device when there is an alarm.

5. To keep the current setting, press ⟨OK⟩. To change the setting, press ⟨▲⟩ or ⟨▼⟩ to toggle the setting, then press ⟨OK⟩. **ALO** appears.

6. Press ⟨EXIT⟩. The changes are saved and **ALr** appears.

7. Press ⟨EXIT⟩ again to exit configuration and display the current temperature.

Configuring the End of Paper Alarm

To configure the End of Paper alarm output:

1. From the ALr menu, press ⟨OK⟩. **ALS** appears.

2. Press ⟨▼⟩. **EOFP** appears.

3. Press ⟨OK⟩. The current End of Paper alarm buzzer setting appears:

    ▽   **buOn** – The internal alarm sounds when the printer is out of paper.

    ▽   **buOF** – The internal alarm does not sound when the printer is out of paper.

4. To keep the current setting, press ⟨OK⟩. To change the setting, press the ⟨▲⟩ or ⟨▼⟩ button to toggle the setting, then press ⟨OK⟩. The current End of Paper external device setting appears:

    ▽   **CoOn** – An alarm is sent to the external device when the printer is out of paper.

    ▽   **CoOF** – An alarm is not sent to the external device when the printer is out of paper.

5. To keep the current setting, press ⟨OK⟩. To change the setting, press ⟨▲⟩ or ⟨▼⟩ to toggle the setting, then press ⟨OK⟩. **EOFP** appears.

6. Press ⟨EXIT⟩. The changes are saved and **ALr** appears.

7. Press ⟨EXIT⟩ again to exit configuration and display the current temperature.

CONFIGURING PRINT SETTINGS

To configure print settings, display the **Prn** root menu. From the **Prn** root menu, you can configure the following print settings:

▲ **Print Format** – Allows you to choose from among three print formats. Both the OM-VLT printer output and the external PC output will use the selected format.

▲ **Printer** – Allows you to define whether or not the OM-VLT automatically prints temperature readings. When the printer is set to print automatically, the OM-VLT prints each temperature reading that it measures, at the defined measurement intervals. Refer to *Changing the Sampling Rate* on page 22.

▲ **PC Output** – Allows you to define whether or not the OM-VLT sends temperature readings to an external PC.

To configure print settings:

1. From the **Prn** menu, press ◖OK◗. The current print format appears:

    ▽ **LChr** – The OM-VLT prints and sends output to an external PC using a large character format. Each temperature record includes the following information: Date, time, and temperature. The following is an example of a temperature record in large character format:

    `29 15:32  78.0F AL`

    In this example, the date is the 29th of the current month, the time is 15:32 (3:32 p.m.), the temperature is 78.0°F, and the alarm is activated.

    ▽ **SChr** – The OM-VLT prints and sends output to an external PC using a small character format. Each temperature record includes the following information: ID of the unit recording the measurement, time, date, and temperature. The following is an example of a temperature record in small character format:

    `OMEGA 123456 04/29/07 15:32 78.0F A`

    In this example, the ID of the OM-VLT unit is OMEGA 123456 (refer to *Changing the Device ID* on page 21), the date is April 29, 2007 (refer to *Changing the Time and Date* on page 20), the time is 15:32 (3:32 p.m.), and the temperature is 78.0°F, and the alarm is activated.

    ▽ **9rAP** – The OM-VLT prints in a graph format. The graph format prints temperature measurements in the form of a curved graph. Every temperature value is printed next to the relevant graph point. The minimum and maximum temperature thresholds are shown as separate striped lines, and the temperature range values are printed in text every 12th row. If temperature range alarms are enabled, the letter A

appears next to any line in which the temperature is outside of the defined temperature range and the delay time has elapsed. In every 12th row, full information is printed in small character format.

Note: When information is printed to an external PC in graph format, the current temperature and the alarm range are printed, but the graph itself is not printed.

2. To keep the current setting, press ⒪🄚. To change the setting, press 🔺 or 🔻 to toggle the setting, then press ⒪🄚. The current printer setting appears:

   ▽   **PrOn** – The OM-VLT printer prints temperature records automatically at the defined measurement intervals.

   ▽   **PrOF** – The OM-VLT printer does not print temperature records unless you request a printout manually. Refer to *Printing* on page 11.

3. To keep the current setting, press ⒪🄚. To change the setting, press 🔺 or 🔻 to toggle the setting, then press ⒪🄚. The current PC output setting appears:

   ▽   **PCOn** – The OM-VLT sends temperature records to an external PC automatically at the defined measurement intervals.

   ∨   **PCOF** – The OM-VLT printer does not send temperature records unless you request it to send output manually. Refer to *Printing* on page 11.

4. To keep the current setting, press ⒪🄚. To change the setting, press 🔺 or 🔻 to toggle the setting, then press ⒪🄚. **Prn** appears.

5. Press 🄴🅇🄸🅃 to save your changes, exit configuration, and display the current temperature.

CONFIGURING TEMPERATURE AND DATE FORMATS

To configure the format in which the OM-VLT displays temperatures (Celsius or Fahrenheit) and dates (European or American):

1. Display the SCAL root menu.

2. From the SCAL menu, press ⒪🄚. The current temperature format appears:

   ▽   **F d9** – Fahrenheit

   ∨   **C d9** – Celsius

3. To keep the current setting, press ⒪🄚. To change the setting, press 🔺 or 🔻 to toggle the setting, then press ⒪🄚. The current date format appears:

   ▽   **EndA** – English (American) date format (mm/dd/yy)

   ▽   **EudA** – European date format (dd/mm/yy)

4. To keep the current setting, press ⬛OK⬛. To change the setting, press ⬛▲⬛ or ⬛▼⬛ to toggle the setting, then press ⬛OK⬛. SCAL appears.

5. Press ⬛EXIT⬛ to save your changes, exit configuration, and display the current temperature.

CHANGING THE TIME AND DATE

To change the time and date:

1. Display the CLoC root menu.

2. From the CLoC menu, press ⬛OK⬛. SdAY appears.

Note: To keep the current date and change the time, press ⬛▲⬛ or ⬛▼⬛ to toggle the setting to Shr, then follow the instructions starting at number 4.

3. To change the date, press ⬛OK⬛. The current month appears in numerical format (01 = January, 02 = February, etc.). Press ⬛▲⬛ or ⬛▼⬛ to change the setting, then press ⬛OK⬛. The current day of the month appears. Press ⬛▲⬛ or ⬛▼⬛ to change the setting, then press ⬛OK⬛. The last two numbers of the year appears. Press ⬛▲⬛ or ⬛▼⬛ to change the setting, then press ⬛OK⬛. Shr appears.

4. To change the time, press ⬛OK⬛ when Shr is displayed. The current hour appears. Press ⬛▲⬛ or ⬛▼⬛ to change the setting, then press ⬛OK⬛. The current time in minutes appears. Press ⬛▲⬛ or ⬛▼⬛ to change the setting, then press ⬛OK⬛. CLoC appears.

5. Press ⬛EXIT⬛ to save your changes, exit configuration, and display the current temperature.

CHANGING THE PASSWORD

To change the OM-VLT password:

1. Display the ChPA root menu.

2. From the ChPA menu, press ⬛OK⬛. PASS appears.

3. Enter a sequence of four keys. PASS appears again.

4. Enter the same sequence of four keys to confirm the password. If the second sequence is the same as the first sequence, ChPA appears. If it is not, PASS appears again, and you must repeat steps three and four.

5. Press ⬛EXIT⬛ to save the new password, exit configuration, and display the current temperature.

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CHANGING THE DEVICE ID

The OM-VLT has a device ID that appears in temperature reports. The purpose of the device ID is to identify the device producing printouts and reports when printouts and reports are being collected from more than one device.

The device ID consists of 12 alphanumeric characters. You can change each character individually by entering a numerical code of one or two numbers. Table 3 shows the code for setting the device ID.

Table 3: Numerical Code for Setting Device ID

Char.	Code	Char.	Code	Char.	Code	Char.	Code	Char.	Code
0	0	8	8	F	16	N	24	V	32
1	1	9	9	G	17	O	25	W	33
2	2		10	H	18	P	26	X	34
3	3	A	11	I	19	Q	27	Y	35
4	4	B	12	J	20	R	28	Z	36
5	5	C	13	K	21	S	29	-	37
6	6	D	14	L	22	T	30		
7	7	E	15	M	23	U	31		

To change the device ID:

1. Display the **SIdn** root menu.

2. Press **OK**. The number 1 appears, followed by a space and a code for the first ID character that will appear in the device. Press **▲** or **▼** to change the character, according to the code in Table 3.

3. Press **OK** to move on to the next character. Repeat this procedure for each character.

4. When you are finished, press **EXIT** to save your changes. **SIdn** appears.

5. Press **EXIT** again to exit configuration and display the current temperature.

CHANGING THE TEMPERATURE CALIBRATION

To change the temperature calibration:

1. Display the CALb root menu.

2. Press (OK). The number 0.0 appears.

3. Press (▲) or (▼) to raise or lower the temperature measurement, in steps of 0.1°. You can raise or lower the measurement by -8° to 8° in one action. (The CALb value is allays in Celsius)

4. When you are finished, press (OK). CALb appears.

5. Press (EXIT) to save your changes, exit configuration, and display the current temperature.

ERASING THE LOG

The OM-VLT saves the last temperature measurements (up to 290 logs). To erase the log:

1. Display the Lo9r root menu.

2. Press (OK). The log is erased, and ALr appears.

3. The OM-VLT will print and or send the message *MEMORY RESET BY USER, <date>, <time>* in the currently configured print format.

4. Press (EXIT) to exit configuration and display the current temperature.

CHANGING THE SAMPLING RATE

The OM-VLT measures temperatures at defined intervals. To change the intervals at which temperatures are measured:

1. Display the SAPr root menu.

2. Press (OK). The current sampling rate appears. The sampling rate can be any value between 1 and 90 minutes.

3. Press (▲) or (▼) to change the sampling rate. When you are finished, press (OK). SAPr appears.

4. Press (EXIT) to save your changes, exit configuration, and display the current temperature.

CHAPTER 5   TROUBLESHOOTING

Table 4 lists common problems and suggested solutions.

Table 4: Troubleshooting

PROBLEM	SUGGESTED SOLUTIONS
No power	Wait five seconds after switching on the power switch.
Poor or no printing	• Make sure you are using thermal printing paper. The OM-VLT will not print on non-thermal paper. • Replace the printing side of the thermal paper, or replace the thermal paper itself. • Make sure you are using original Power adaptor / supply of 12V AC\DC, 2000mA (24VA) • Move the OM-VLT to a location with a temperature between 0 to 149°F (-18 to 65°C).
Paper stuck	• Make sure that the paper is starched, straight and that there is no feed interference. • Make sure that the paper roll is perfectly aligned to be parallel to the paper inlet. Use the 2 plastic discs supplied to ensure a parallel paper lay.
Printing????? ...	• Take out the Lithium battery (CR2032) for 5 min and put it back. Refer to *Battery Installation and Replacement* on page 9. Set the time and date. Refer to *Changing the Time and Date* on page 23.
Wrong time or date	• Change the time or date. Refer to *Changing the Time and Date* on page 23. • Make sure you are using the correct date format (dd/mm/yy or mm/dd/yy). Refer to *Configuring Temperature and Date Formats* on page 19. • Replace the Lithium battery (CR2032). Refer to *Battery Installation and Replacement* on page 9.
Cannot print online help	Change the print mode to PrOn. Refer to *Printing* on page 11.

APPENDIX A   FACTORY DEFAULT SETTINGS

To restore the OM-VLT to its factory default settings:

1. Switch the power switch off.

2. Switch the power switch back on while pressing FEED.

3. When **FAdF** appears in the display area, press OK.

Note: Restoring factory settings does not delete the temperature logs.

Table 5 lists the factory default settings.

Table 5: Factory Default Settings

MENU ITEM	PARAMETER	DEFAULTS	LEGAL VALUES
PASSWORD SETTINGS			
PASS	Password	▲ ▼ OK EXIT	
ALARM SETTINGS (AL.)			
ALS	Alarm Range Settings	Min: -4°F (-20°C) Max: 86°F (30°C)	-67°F to 302°F (-55°C to 150°C)
ALdl	Alarm Delay	No	No, 15, 30 min, 1, 2 hr
ALO	Alarm Output	BuOn (buzzer On) CoOn (contact On)	buOn/buOF CoOn/CoOF
EOP	End of Paper	BuOn (buzzer On) CoOn (contact On)	buOn/buOF CoOn/CoOF
PRINT SETTINGS (PRN)			
	Print Format	SChr (small character)	LChr (large), SChr (small), 9rAP (graph)
	Printer On/Off	PrOn (Printer On)	PrOn, PrOF
	PC Output On/Off	PCOn (PC Output On)	PCOn, PCOF

TEMPERATURE AND DATE FORMATS (SCAL)

		# OM-VLT		
	Temperature Format	F d9 (Fahrenheit)		C d9 (Celsius), F d9 (Fahrenheit)
	Date Format	EndA, English, (mm/dd/yy)		EudA (dd/mm/yy) EndA (mm/dd/yy)

CURRENT DATE AND TIME (CLOC)

		# OM-VLT		
SdAY	Date	12/31/07		
Shr	Time	12:00		

DEVICE ID NUMBER (SIDN)

SIdn	Device ID Number	OMEGA 123456	

TEMPERATURE CALIBRATION (CALB)

CALb	Temperature Calibration	0° (Celsius)	−8° to 8° (Celsius)

SAMPLING RATE (SAPR)

SAPr	Sampling Rate	10 min	1 to 90 minutes

OM-VLT SENSOR Calibration note:

The original, supplied sensor was calibrated in accordance to our production procedures. The calibration offset number "CALb" is **+ 0.9**

In case you will be required to restore Factory Default settings. Insert the above offset value to synchronize Sensor and OM-VLT Instrument.

To change the temperature calibration, refer to *Changing The Temperature Calibration* on page 22.

When replacing new Sensor, Insert the new Sensor offset value.

APPENDIX B   SPECIFICATIONS

Table 6 lists the OM-VLT's specifications.

Table 6: Specifications

Description	Specification
Temperature Measurement Range	-40°F to +266°F (-40°C to +130°C)
Temperature Measurement Accuracy	+/- 1.8°F (+/- 1°C)
Ambient Operating Temperature Range	0°F to +150°F (-18°C to +65°C) non-condensing
Ambient Operating Relative Humidity	0 to 95% non-condensing
Temperature Writing and Storage Resolution	0.2°F (0.1°C)
Storage Temperature Range	-40°F to +150°F (-40°C to +65°C)
Temperature Sensor Cord Length (extensible)	33 feet (10 m)
Temperature Sensor Diameter	0.25 inches (6.35 mm)
Alarm Contact Rating	1 Amps, 12V AC/DC
Thermal Chart Paper Width	2 inches (50.8 cm)
Thermal Chart Paper Length	131 feet (40 m)
Display	Numeric LED Display, 4 characters
Primary Power Supply	OM-VLT-115-ADAPTOR: 115 V AC, 50/60 Hz OM-VLT-230-ADAPTOR: 220~240V AC, 50/60 Hz
Battery Backup	9V battery, logs up to 50 hours (not supplied)
Clock Battery	3.6V Lithium battery, two years in average use (supplied)
Size	8.2 x 5.3 x 2.7 inches (208.6 x 135 x 69 mm)

APPENDIX C   COMPONENTS

Table 7 lists the OM-VLT's components, including optional components.

Table 7: Components

DESCRIPTION	SUPPLIED	PART NUMBER
OM-VLT with temperature channel	1	
Temperature Sensor, 33 feet (10 m)	1	OM-VLT-SENSOR
2" thermal paper roll, 131 feet length (40 m)	2	OM-VLT-PAPER
12V AC, power adaptor: USA: 130V AC operation Europe: 230V AC operation	1	OM-VLT-115-ADAPTOR OM-VLT-230-ADAPTOR
3.6V Lithium battery	1	OM-VLT-BAT
User's Manual	1	
Wall mounting bracket	1	OM-VLT-BRKT
Paper compartment cover	Optional	OM-VLT-PACO
Battery compartment cover	Optional	OM-VLT-BACO
Silencer remote kit, 16.4 feet (5m)	Optional	OM-VLT-SK
Extension cable for temperature sensor, 10 feet (3m)	Optional	OM-VLT-CABLE10H
Extension cable for temperature sensor, 33 feet (10m)	Optional	OM-VLT-CABLE33H
RS-232 serial data cable, 6 feet (1.8m)	Optional	OM-61-RS232-DB9
Vehicle power reducer from 24V DC to 12V DC	Optional	OM-VLT-PR

APPENDIX D   MENU STRUCTURE

Legend:

Adj	Adjust
PASS	Password
ALr	Alarm
AlS	Alarm Range Settings
LoAl	Low Alarm Threshold
HiAl	High Alarm Threshold
AldI	Alarm Delay
AlO	Alarm Output
EoFP	End Of Paper
bu On/OF	Buzzer On/Off
Co On/OF	Contact On/Off
Prn	Print
9rAP/LChr/SChr	Graphics/ Large/ Small Font

PrOn/PrOF	Printer On/Off
PCOn/PCOF	PC port On/Off
SCAL	Standards Scale
C/F d9	Celsius/Fahrenheit degrees
EudA/EndA	Europe (d/m/y) / English (m/d/y)
CloC	Clock Set
SdAy	Set Date
Shr	Set Time
ChPA	Change Password
SIdn	Set ID Number Code
CALb	Temperature Calibration
Lo9r	Logging Reset
SAPr	Sampling Rate

ID Number Code Set

Chr.	Code	Chr.	Code	Chr.	Code
0	0	C	13	P	26
1	1	D	14	Q	27
2	2	E	15	R	28
3	3	F	16	S	29
4	4	G	17	T	30
5	5	H	18	U	31
6	6	I	19	V	32
7	7	J	20	W	33
8	8	K	21	X	34
9	9	L	22	Y	35
A	10	M	23	Z	36
B	11	N	24	-	37
	12	O	25		

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