Supco International LTD

VLT4 \ VLTH

4 Channels

Vision Temperature\ Humidity and Event Recorder

User's Guide

EN12830 RoHS CE FC

SUPCO International Ltd.

Limited Warranty

Supco International Ltd hereby warrants that it will repair or replace, at its option, any part of the Vision Temperature\ Humidity and Event Recorder or any of its accessories, which proves defective by reason of improper workmanship or material, free of charge for parts and labor, for a period of ONE YEAR from the date of original purchase by the buyer. This warranty does not apply if, in the sole opinion of Supco International Ltd, the VLT4 \ VLTH Vision Recorder, or any of its accessories, has been intentionally or accidentally damaged due to misuse, neglect, or improper packing, shipping, modification or servicing, by other than Supco International Ltd, or personnel authorized by Supco International Ltd. For information on how to obtain service under this warranty, contact the dealer where your VLT4 \ VLTH was purchased or contact Supco International Ltd at the address printed below:

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Installation Instructions and Precautions

1. The appliances in the package are designed for wall mounting or table-top installation.
2. When mounting the product on a wall, be sure to use the correct type of screw. Secure all screws to prevent the product from falling from its mounting.
3. Make all the connections to the product first and only afterwards mount the transformer on the wall.

Safety Precautions

1. Install the product in a dry environment. Prevent humid conditions and water leakage.
2. Protect the project and power supply from extreme temperatures. Do not install the product near radiators or in direct sunlight.
3. Prevent any foreign objects from falling on the product. Prevent spillage of any liquids, such as strong acids.
4. Connect the power supply to the appropriate voltage, as marked on the unit.
5. In order to prevent damage to cables and connectors, do not disconnect cables by pulling on them.
6. Route all cables where they will not cause hazard and ensure that the cables are not harmed in any way.

Warnings

1. Do not replace cables or connectors with non-original parts.
2. Fault connections may cause electrocution.
3. The power supply is designed for indoor use only.

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CHAPTER 1   INTRODUCTION

DEFINITION OF TERMS

▲ **VLT4** model **-** Temperature Vision Recorder **–** Supporting 4 sensor inputs of Temperature and Switches (Event) in any combinations (up to 4 channels).

▲ **VLTH** model **-** Temperature & Humidity Vision Recorder **–** Supporting 2 physical sensors of Temperature & Humidity (4 channels), or one sensor of Temperature & Humidity and one Switch (Event) indication (3 channels).

▲ **T** sensor **-** Temperature sensor (for VLT4 only).

▲ **TH** Sensor **-** Temperature and Humidity sensor (for VLTH only).

▲ **S** Sensor **–** Event\ Switch (On/Off indication, for both VLT4 and VLTH).

▲ **LED –** Light indicator (Light Emitting Diode).

▲ **RS232 -** A standard for serial transmission of data between two devices.

The Vision Temperature\ Humidity and Event Recorder (VLT) records, saves, and prints up to 16,200 readings at predefined intervals. The VLT produces an alarm whenever the measured value goes above or below a defined range, or whenever the Event (switch) changes its position. The alarm can be produced immediately when the measured value goes out of the defined range, or after the measured value remains out of range for a certain period of time. The VLT provides several printing options, including the ability to send data to an external PC or to an internet viewer through a cellular adaptor (not included). The VLT can also send alarms to an external device via a relay contact.

Measuring Range:

The VLT4 temperature range: -40°C to +130°C ±0.5°C (-40°F to +266°F ±1.0°F).

The VLTH Temperature range: -40°C to +85°C ±0.5°C (-40°F to +185°F, ±1.0°F). The VLTH Relative Humidity range: 0% to 100% RH, Accuracy: 10% to 90% RH ±2%RH, Other ±4%RH.

Operating Temperature Range for the VLT4 \ VLTH:

Without the thermal paper: -40°C to +85°C (-40°F to +185°F)

With the thermal paper: -40°C to +65°C (-40°F to +150°F)

FEATURES

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

Table1: Vision Recorder Features

FEATURE (ACCORDING TO THE UNIT MODEL)	FOR FURTHER INFORMATION SEE
Setup the sensor input type between: Temperature\ Temperature & Humidity\ Event readings	*Configuring Sensors Types Settings* on page 19
Records Temperatures\ Humidity\ Events readings at intervals of between 0.5 to 120 minutes	*Changing the Sampling Rate* on page 29
Produces an alarm if the temperature\humidity\event values goes above or below a predefined range	*Configuring the Alarm Range* on page 21
Display the measured \Max. \Min. values and change the Display to show the next channels	*View Current\ Max.\ Min. Measured Values* on page 11
Reset the Highest and Lowest statistical values from the memory	*Reset the \ Max.\ Min. Alarm Statistical Values* on page 12
Records and displays temperatures in either Celsius or Fahrenheit, and date in European or English (American) format	*Configuring Temperature and Date Formats* on page 26
Records and prints 16,200 readings on request at any time	*Printing* on page 12
Four printing formats, including graphic or text, ID name/ number, time, temperature, humidity, event, and alarm status	*Configuring Print Settings* on page 24
Printing Sorted measuring reports and Summary Reports	*Print sorted memory reports list* on page 13 and *Print summary report* on page 13
Audio and visual alarms, including an option for sending alarms to an external device	*Alarms* on page 23 and *Optional Connections* on page 8
sounds an alarm if the Backup Battery become Weak or if the Thermal Paper Ends	*Configuring the Low Backup Battery Alarm* on page 23 and *Configuring the End of Paper Alarm* on page 23
Option to export data to external PC	*Viewing Information on an External PC* on page 8
Optional backup battery for up to 60 hours	*Battery Installation and Replacement* on page 10

DESCRIPTION

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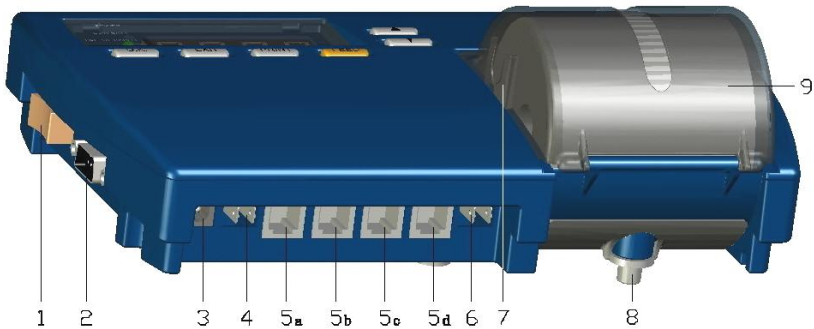
Figure 1: Vision Recorder - Front/Top View

1. Power switch
2. RS-232 port
3. 12V power jack
4. Buzzer silent contacts
5. Physical sensor input jacks. 5a, 5b, 5c and 5d (for Temperature\ Humidity or Event sensors)

    ∇ Model: VLT4 - Can use the 4 inputs jacks, 5a – 5d.

    ∇ Model: VLTH - Can use only 2 inputs jacks (the 2 jacks on the left side, 5a and 5b)

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 VLT.
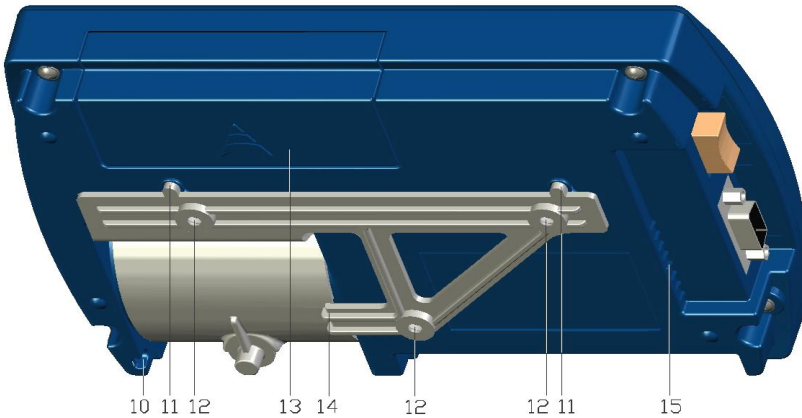
Figure 2: Vision Recorder - Rear View

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 VLT.

Figure 3: Vision Recorder - Display Area

CHAPTER 2   INSTALLATION

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

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

▲ **Installation Options** – Describes the possible ways to install the VLT, and describes how to attach the VLT to a wall bracket.

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

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

PACKAGE CONTENTS

The VLT package should include the following components:

Table 2: Package Contents

DESCRIPTION	QUANTITY	PART NUMBER
VLT unit with capability to read up to 4 channels	1	VLT4-12 (12V for vehicle) VLT4-115 (115V) VLT4-230 (230V Europe) VLTH-12 (12V for vehicle) VLTH-115 (115vac) VLTH-230 (230V Europe)
Remote 33 feet cord for Event (on/off switch) Remote temperature sensor for VLT4 or Temperature and humidity sensor for VLTH	1 (10 meters) 1 (33 feet/ 10m)	VLS CABLE VLT PROBE or VLTHPROBE
Thermal paper roll, 2 inches wide, 131 feet long (40 meters) for max. 12,750 text lines.	2 (1 installed)	VLPAPER
12V AC/DC power adaptor - US (120V) or 12V AC/DC power adaptor - EU (230V) or DC cord instead of power adaptor for VLT12	1	VL115 VL220 (Europe) CRCPW
3.6V Lithium battery (CR2032)	1 (installed)	VLBAT
Hanging bracket	1	VLBRKT
User's Guide	1	VLMANUAL
Bracket mounting screws + Secure screw	3 + 1	

INSTALLATION OPTIONS

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

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

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

Bracket Mounting

To attach the VLT to the wall using the bracket:

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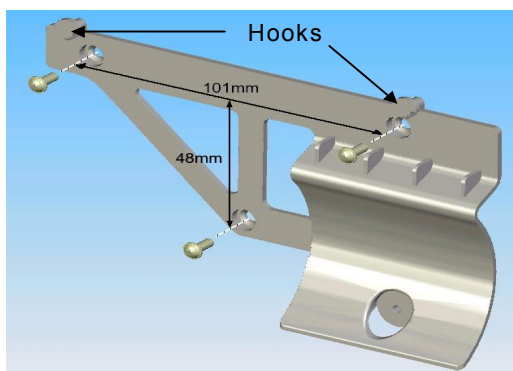
Figure 4: Bracket Mounting

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 7.

2. Hang the 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 VLT to the bracket, as shown in Figure 5.
5. Return the paper cover to its place.
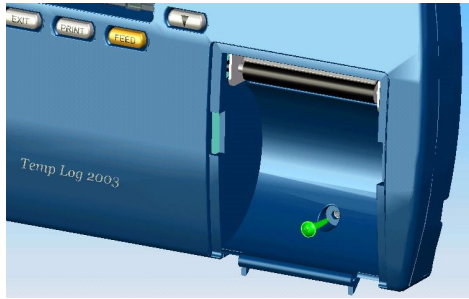
Figure 5: Securing the Unit to the Bracket

CONNECTIONS

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

Mandatory Connections and Startup

To connect and start up the 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 /temperature-humidity/ event sensors cord to the sensor input jacks (items 5… in Figure 6). The VLT recorder has 4 inputs jacks. Connect the sensors 1 thru 4 from left to right. The VLTH uses only the first 2 left inputs jacks.

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 first channel value should appear in the display area.
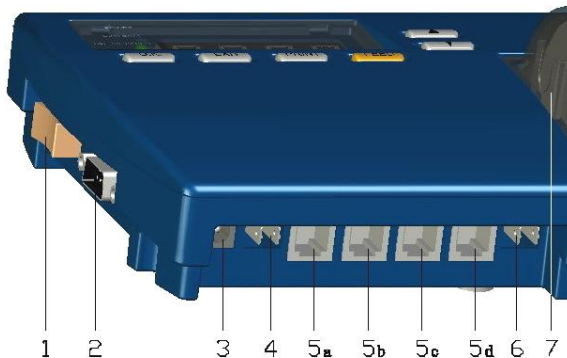
Figure 6: Connections

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 data to a PC, attach an RS-232 cable (not included) from the PC to the RS-232 port (item 2 in Figure 6).

⚠ To export data to the internet viewer, connect cable from the Cellular Adaptor (not included) 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 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 *Import information to view on an external PC* on page 9.

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 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,

Import Information to view on an External PC

To view information from the 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 VLT Hyper Terminal connection program. To open it,
   select **Start> Programs> Accessories> Communications>**
   HyperTerminal and double-click the VLT Hyper Terminal icon that you
   previously created (refer to *Establishing a New Hyper Terminal*
   Connection on page 8).

The VLT Hyper Terminal window on the PC displays message lines according
to the sampling rate. The Hyper Terminal displays information like the VLT
prints in full text format, both manually and automatically. For information on
printing manually, refer to *Printing* on page 12. For information on printing
automatically, refer to *Configuring print setting* on page 24.

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**.

POWER

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

Power Source and Power in Backup mode

The VLT uses a 12V AC/DC, 2A power supply. When the VLT is using the main
power supply, the Power LED is lit green.

Power consumption: 12V, 1550mA max. while printing (100mA without printing).

In the event of a power failure, or if the working environment temperature
goes over 150°F (65°C), the VLT automatically switches over to a 9V backup
battery (if installed). When operating in backup mode, the VLT logs
measurements to memory, but does not print. The Power LED blinks and the
display area shows the current measurements value according to sample rate,
minimum every 15 minutes for two seconds.

You can also display the current measurements value for two seconds at a time manually by pressing $\boxed{\text{OK}}$. With a new 9V battery, the VLT can operate in backup mode for 60 hours.

When the main power returns, the Power LED goes on without blinking, and the printer (if enabled) prints the measurements value that were recorded but not printed when the VLT was operating in backup mode.

Battery Installation and Replacement

The VLT uses two batteries:

⚠ **3.6V 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 VLT configuration settings.

⚠ **9V alkaline backup battery** – Used for backup operation (refer to *Power Source and Power in Backup mode* on page 9). This battery is optional, and is not included with the VLT package. When the Low Batt LED illuminates, you should replace the 9V backup battery (refer to *Configuring the Low Backup Battery Alarm* on page 23).

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.
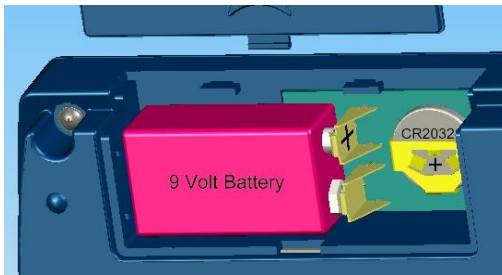
Figure 7: Battery Installation and Replacement

CHAPTER 3   OPERATION

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

▲ **Displaying Measurements Value**

▲ **Printing**

▲ **Advancing and Changing Printer Paper**

▲ **Alarms**

DISPLAYING MEASUREMENTS VALUE

When the VLT is on, it displays the current first Channel value (Sensor 1). You can also display the value of other channels by pressing ⊙⊙ and theirs maximum ("HI_") and minimum ("LO_") measured values in the VLT's memory by pressing ▲ ones and twice. The VLT's memory can store up to 16,200 readings. The time period this covers depends on the sampling rate. For example, if the sampling rate is 15 minutes, the VLT's internal memory contains the measurements value data from the last 170 days.

View Current\ Max.\ Min. Measured Values

▲ **Display the measured value and the next channels value -** The Display will show by default the value of channel # 1and the *Channel LED* # 1 will be ON. Press ⊙⊙ to display the next channel value and the sensor LED will be switched accordingly to the next *Channel LED*.

▲ **Display the highest value (Max) -** The current *Channel LED* is ON, according to the displayed channel # (1-4). By Pressing ▲ the Maximum statistical value for the current channel will be displayed. The display will show: "**HI__**" for 2 sec., then it will show the highest memory value for that channel.

▲ **Display the lowest value (Min) -** The current *Channel LED* is ON, according to the displayed channel # (1-4). By pressing ▲ again, the Min. statistical value for the current channel will be displayed. The display will show: "**LO__**" for 2 sec., then it will show the lowest memory value for that channel.

Reset the HI_\LO_\Alarm Statistical Values

The Reset will erase the memory of: "HI_" (Max.)\"LO_" (Min.) and Alarm statistical values for all four channels. Press ▼ twice, to display **rESt**. Press ⎡OK⎤ to agree, the displayed **rESt** will be flashing. Press ⎡OK⎤ again to approve - all the four channels, HI_\LO_\Alarm statistical values will be erased from the memory – the display will return to current measured value. Date and time of the Last HI_/LO_/Alarm statistical values reset will be saved in the memory.

Notes: By pressing ▲ again or while in **HI_** or **LO_** value or while **rESt** displayed and no key is pressed for three seconds or ⎡EXIT⎤ pressed – the display will return to show the last measured value for the current channel.

Event (Switch) channel does not have Max and Min values

You can configure the VLT to display temperatures in either Celsius or Fahrenheit. Refer to *Configuring Temperature and Date Formats* on page 26.

Possible Value Formats and Warnings Display

The measured value will be display by the 4 digit display as the following optional format and according to the connected type of sensor and warnings:

▽ Temperature: **130.0 / -40.9** (without a degree sign C / F)
▽ Humidity: **100.0 / H99.9 /H_0.1** (begins with H, except of 100.0)
▽ Event: **_On_ / _OFF** (state position)
▽ No sensor: **_noS** (when no sensor is attached according sensor setup)
▽ Error sensor: **ErrS** (sensor malfunction or mismatch to sensor setup)

PRINTING

The VLT can be configured to print measurements values 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 24.

⚠ In addition, you can manually print on demand: memory report (a list of all saved measurements), sorted reports divided by date and time, summary report of the setup, alarms and statistic or to send the reports to a PC to view and save the information.

Print a recent memory report list

The VLT can manually print on demand a recent report list of the last 270 saved measurements. To print the recent memory report list on the printer:

1. Press ⌘PRINT, **SEnd** appears (send report)
2. Press ⌄, to send report list to the printer, **rEPL** appears
3. Press ⌘OK, **rEPO** appears (report approved)
4. Press ⌘OK, start printing the last report list, the current value appears

Print sorted memory reports list

The VLT can manually print a sorted reports list on demand (a list of all saved measurement reports). Every report divided by time and date and contains 270 lines. To print that sorted memory reports list on the printer:

1. Press ⌘PRINT, **SEnd** appears (send report)
2. Press ⌄, to send report list to the printer, **rEPL** appears
3. Press ⌘OK, **rEPO** appears (report approved)
4. Press ⌘PRINT, start printing the available reports list, the current value appears
   Choose the report number from the printed list according to time and date
5. Press ⌘PRINT, **SEnd** appears (send report)
6. Press ⌄, to send report list to the printer, **rEPL** appears
7. Press ⌘OK, **rEPO** appears (report approved)
8. Use the ⌃ and ⌄ to choose the report number of your selection.
9. Press ⌘OK, start printing the chosen report list, the current value appears

Print summary report

The VLT can manually print on demand a summary report list of all the current measurements, alarms and setup configurations of the VLT. For example: The highest, lowest, current measurements, sampling rate, channels type, channels names, last alarm values, alarm threshold and delay setup, status etc.:

1. Press ⌘PRINT, **SEnd** appears (send report)
2. Press ⌄, to send summary report to the printer, **rEPL** appears
3. Press ⌄, **rEPS** appears (report summary approved)
4. Press ⌘OK, start printing the summary report, the current value appears

Export memory report to PC

The VLT can manually send on demand a report list of all the saved measurements to a PC to view and to save the information:

1. Press PRINT, **SEnd** appears (send report)
2. Press ▲, to send report list to a PC**, rEPL** appears
3. Press OK, start sending the report list to PC, the current value appears

Export summary report to PC

The VLT can manually send on demand a summary report list of all the current measurements, alarms and setup configurations of the VLT to a PC. For example: The highest, lowest, current measurements, sampling rate, channels type, channels names, last alarm values, alarm threshold and delay setup, status etc.:

1. Press PRINT, **SEnd** appears (send report)
2. Press ▲, to send summary report to a PC**, rEPL** appears
3. Press ▼, **rEPS** appears (report summary approved)
4. Press OK, start sending the summary report to PC, the current value appears

The VLT prints or sends the memory report in whichever print mode is currently configured. If the VLT is also configured to print or send measurements automatically, then when the printing is finished, the 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***.

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

On every two pages of the **Memory Report** print, allow at least 2 minutes timeout, in order for printer to not overheat.

While printing, either on the PC or on paper, the print button is not active

ADVANCING AND CHANGING PRINTER PAPER

The VLT uses thermal printing paper to print temperature readings. This type of paper uses heat, rather than ink, to print. The 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 setting* on page 24.

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

Alarm indicators

The VLT has the following three 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 8. On Alarm situation, the *Buzzer* will be activated accordingly, only if that trigger or channel was chosen to be ON you can also configure the VLT so that the buzzer does not go on. Refer to *Configuring the Alarm Output* on page 22 and Refer to *Configuring the Low Backup Battery Alarm* on page 23 and Refer to *Configuring the End of Paper Alarm* on page 23.

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 VLT's power is on. The four LEDs located below the display indicate the Channels alarm. On Alarm of the current displayed channel, the current *Channel LED* will flash rapidly 0.5 sec. ON, 0.5 sec. OFF while *the Alarm LED* is ON. On Alarm of other channels (not the current displayed channel), their corresponding *Channel LED's* will flash, 1 sec. ON, 1 sec. OFF while *Alarm LED* is ON.

▲ **Relay Contact to External Device** – You can connect the external device to the VLT remote alarm contacts (item 6 in Figure 6 on page 7) and configure the VLT to send alarms to the external device via a normally open relay contact. Refer to *Configuring the Alarm Output* on page 23 and Refer to *Configuring the Low Backup Battery Alarm* on page 23 and Refer to *Configuring the End of Paper Alarm* on page 23.

Alarm triggers

The following events trigger an alarm:

▽   Channel value exceeds the alarm range and delay time elapsed
▽   Disconnected sensor
▽   Sensor malfunctioned or mismatch to sensor type setup
▽   Low Backup Battery
▽   Printer out of paper

▲ **Alarm Range** – If the measured value goes outside the maximum or minimum defined value Alarm 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 22

▲ **Disconnected Sensor**– If the sensor is disconnected from the VLT, the display area shows the message **nOS**, the Alarm LED lights, the corresponding *Channel LED will* flash, the internal buzzer sounds and an alarm is sent to an external device via the relay contact.

▲ **Sensor malfunction or sensor setup mismatches** – The display area shows the message **ErrS** and the corresponding *Channel LED will* flash. The Alarm LED lights, the internal buzzer sounds and an alarm is sent to an external device via the relay contact. For **VLTH** if a TH Sensor is disconnected or not working this will cause error on two channels.

▲ **Low Backup Battery** – If the battery is low or there is no battery installed, the internal buzzer actives (if enabled), and an alarm is sent to an external device via the relay contact (if enabled). In addition, the LOW BATT LED lights. For instructions on buzzer and relay configuration in case of Low Backup Battery alarms, Refer to *Configuring the Low Backup Battery Alarm* on page 23.

▲ **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 23.

Note: If an alarm situation activated the Buzzer or the Alarm Contact for some reasons, the alarm will be activated continuously until all the triggers of the alarm will be cleared.

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 VLT. To configure 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 27.

To change the 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. **StyP** appears in the display area. **StyP** allows you to set the sensors types.

4. The VLT has 10 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:

   ▽   **StyP** – Sensors types set
   ▽   **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 VLT menu tree, refer to Appendix D, *Menu Structure* on page 38. For a list of the default factory settings, refer to Appendix A, *Factory Default Settings* on page 31.

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 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 VLT will print and/or send the online help message in whichever format is currently configured (as described in *Configuring Print Settings* on page 24).

Note: The ⌈PRINT⌉ key can be used to access the online help in all situations, except while the current measured value is being displayed.

3. The 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 24.

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

CONFIGURING SENSORS TYPES SETTINGS

To configure the sensors type settings, display the **StyP** root menu. From the **StyP** root menu. Assign the sensor type for each input jack and respectively the channel number, corresponding to the VLT model. This gives you the ability to change the sensors default allocation and to configure the sensor type for each jack.

▲ **Input jack** – corresponds to the RJ45 connectors on the panel. Refer to the input jacks, items 5a, 5b, 5c and 5d in Figure 6 on page 7.

▲ **Logical channel** – corresponds to 1 value which is measured, displayed, saved, and printed. This value can be temperature, humidity or event.

▲ **t Sensor -** Temperature sensor, 1 logical channel (for VLT4 model only).

▲ **tH Sensor -** Temperature and Humidity sensor, connected to 1 physical input jack but include 2 logical channels (for VLTH model only).

▲ **S Sensor –** Event\ Switch (On/Off indication, for both VLT4 and VLTH).

▲ **nOS** – No sensor is connected to that input jack (for both VLT4 and VLTH).

Notes: The **t Sensor** isn't compatible with model # VLTH,
The **tH Sensor** isn't compatible with model # VLT4.

To configure the sensors type's in each physical input jack:

1. Display the **StyP** from the root menu, press ⌈OK⌉. **SnS1** (sensor 1) appears.
2. To scroll among the possible input jacks (**SnS1..4**), Press ⌈▲⌉ or ⌈▼⌉. When the physical sensor input jack you want to setup appears, press ⌈OK⌉. The current sensor setup: **t** / **tH**, **E** or **nOS** appears.
3. To scroll among the possible sensor types: **t** / **tH**, **E** or **nOS**, press ⌈▲⌉ or ⌈▼⌉. When the sensor type you want to select appears, press

$\boxed{\text{OK}}$. The next possible input jacks (**SnS1..4**) Appears.
(**SnS1** - sensor 1**, SnS2** - sensor 2, **SnS3 -** sensor 3, **SnS4 -** sensor 4)

4. To configure other possible input jacks (**SnS1..4**), repeat steps 2 and 3.

5. Press $\boxed{\text{EXIT}}$ twice to exit configuration and display the current measured value.

Notes: The change of the sensor type in the StYP menu will cause a reset of the statistics of all channels and also changes in the Alarm thresholds – they will be set to the default values according to the sensor type.

It is recommended to disconnect the sensors from the connectors, when you are going to change the sensor type in the menu.

As TH sensor needs 2 logical channels, when connecting Event sensor – there will be one free channel (no alarm).

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 (ALS1..4)** – Allows to define an alarm range for temperature/ humidity or a switch state for each channel. When the current measured value is outside of this range, the VLT sends an alarm.

▲ **Alarm Delay (ALd1..4)** – Allows you to define an individual alarm delay for each channel. If the current measured value goes out of the defined value range, the VLT does not send an alarm until the measured value remains outside of the range for the length of time defined by the Alarm Delay parameter.

▲ **Alarm Output (ALO1..4)** – Allows you to define separately for each channel whether or not the VLT's internal alarm sounds when an alarm is sent, and whether or not alarms are sent to an external device.

Table 3: 4 Channels Alarm Settings Legend

DESCRIPTION	CHANNEL1	CHANNEL 2	CHANNEL 3	CHANNEL 4
Alarm Setting	ALr1	ALr2	ALr3	ALr4
Alarm Range Set	ALS1	ALS2	ALS3	ALS4
Low / High Alarm	LoA1 / HIA1	LoA2 / HIA2	LoA3 / HIA3	LoA4 / HIA4
Alarm Delay	ALd1	ALd2	ALd3	ALd4
Alarm Output	ALO1	ALO2	ALO3	ALO4

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

▲ **Low Backup Battery Alarm (bAtA)** – Allows you to define whether or not the VLT's internal alarm sounds, and whether or not alarms are sent to an external device, when the Backup Battery is low.

Configuring the Alarm Range

Each channel has individual alarm range. To configure the high and low temperatures or humidity values that will trigger an alarm:

1. From the **ALr** in the root menu, press ⏹OK⏹. **ALr1..4** (alarm, channel #) appears.

2. To scroll among other alarmed channels (**ALr1..4**), Press ⏹▲⏹ or ⏹▼⏹. When the alarmed channel you want to configure appears, press ⏹OK⏹. The same chosen alarm channel to set (**ALS1..4**) Appears.

   ∇ After choosing the channel, the following alarm menus will refer to it.

   ∇ While pressing ⏹▲⏹ or ⏹▼⏹ you will see also **EOFP** and **bAtA**.

3. Press ⏹OK⏹. **LoA1..4** (low alarm value, channel #) appears.

   ∇ For Event (Switch) channel:

      o The alarm trigger stage **On** or **OFF** appears.

      o Press ⏹▲⏹ or ⏹▼⏹ to change the alarm trigger stage.

4. Press ⏹OK⏹. The current minimum value appears.

   ∇ For Event (Switch) channel: **ALS1..4** appear. Pass to step 10.

5. Press ⏹▲⏹ or ⏹▼⏹ to set the minimum temperature/humidity value. Temperatures/humidity value below this value will trigger an alarm.

6. Press ⏹OK⏹. **HIA1..4** (high alarm value, channel #) appears.

7. Press ⏹OK⏹. The current maximum value appears.

8. Press ⏹▲⏹ or ⏹▼⏹ to set the maximum temperature/humidity value. Temperatures/humidity values above this value will trigger an alarm.

9. Press ⏹EXIT⏹. The changes are saved and **ALS1..4** appears.

   ∇ To change other alarm settings as **ALd1** (alarm delay) or **ALO1** (alarm output), press ⏹▲⏹ or ⏹▼⏹ to display the other alarm menu items.

10. Press ⏹EXIT⏹. **ALr1..4** appears.

11. To configure alarm range for other channels (**ALr1..4**), repeat steps 2 to 10.

   ∇ 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 measured value, press ⏹EXIT⏹ twice.

Configuring the Alarm Delay

Each channel has individual alarm delay. To configure the alarm delay:

1. From the **ALr** menu, press ⬡OK⬡. **ALr1..4** (alarm, channel #) appears.
2. To scroll among other alarmed channels (**ALr1..4**), Press ⬡▲⬡ or ⬡▼⬡. When the alarmed channel of your choice appears, press ⬡OK⬡. The same chosen alarm channel to set (**ALS1..4**) Appears.
3. Press ⬡▲⬡. **ALdl..4** (alarm delay, channel #) appears.
4. Press ⬡OK⬡. The current alarm delay setting appears (in minutes).
5. Press ⬡▲⬡ or ⬡▼⬡ to scroll among the possible alarm delay values: 00 (no delay), 10 (minutes), 20 (minutes), 30 (minutes), 60 (minutes), and 120 (minutes). When the value you want to select appears, press ⬡OK⬡. **ALdl..4** appears.
6. Press ⬡EXIT⬡. The changes are saved and **ALr1..4** appears.
7. To configure alarm delay for other channels, repeat steps 2 to 6.
8. Press ⬡EXIT⬡ again to exit configuration and display the current measured value.

Note: The Low Backup Battery Alarm (**bAtA**) and the End of Paper Alarm (**EOFP**) do not have alarm delay.

Configuring the Alarm Output

To configure the alarm output:

1. From the **ALr** menu, press ⬡OK⬡. **ALr1..4** (alarm, channel #) appears.
2. To scroll among other alarmed channels (**ALr1..4**), Press ⬡▲⬡ or ⬡▼⬡. When the alarmed channel of your choice appears, press ⬡OK⬡. The same chosen alarm channel to set (**ALS1..4**) Appears.
3. Press ⬡▲⬡ or ⬡▼⬡ twice. **ALO1..4** (alarm output, channel #) appears.
4. 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.

5. 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.

6. To keep the current setting, press ⬡OK⬡. To change the settings, press ⬡▲⬡ or ⬡▼⬡ to toggle the settings, then press ⬡OK⬡. **ALO1..4** appears.
7. Press ⬡EXIT⬡. The changes are saved and **ALr1..4** appears.

8. To configure the alarm output for the other channels, repeat steps 2 to 7.
9. Press ⎣EXIT⎦ again to exit configuration and display the current value.

Configuring the End of Paper Alarm

To configure the End of Paper alarm output:

1. From the **ALr** menu, press ⎣OK⎦. **ALr1..4**, **EOFP** or **bAtA** appears.
2. To scroll among the alarmed channels (**ALr1..4**, **EOFP** or **bAtA**), Press ⎣▲⎦ or ⎣▼⎦. When the **EOFP** appears, press ⎣OK⎦.
3. 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 measured value.

Configuring the Low Backup Battery Alarm

To configure the Low Backup Battery alarm output:

1. From the **ALr** menu, press ⎣OK⎦. **ALr1..4**, **EOFP** or **bAtA** appears.
2. To scroll among the alarmed channels (**ALr1..4**, **EOFP** or **bAtA**), Press ⎣▲⎦ or ⎣▼⎦. When the **bAtA** appears, press ⎣OK⎦.
3. The current Low Battery alarm buzzer setting appears:
   - ∇ **buOn** – The internal alarm sounds when the 9v battery is low or if there is no battery installed.
   - ∇ **buOF** – The internal alarm does not sound when the 9v battery is low or if there is no battery installed.
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 Low Battery external device setting appears:

- ▽ **CoOn** – An alarm is sent to the external device when the 9v battery is low or if there is no battery installed
- ▽ **CoOF** – An alarm is not sent to the external device when the 9v battery is low or if there is no battery installed

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

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

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

CONFIGURING PRINT SETTINGS

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

▲ **Channels to Print** – Allows you to choose whether to print the all 4 channels value in a table, or the value of one chosen channel (1, 2, 3 or 4) only.

▲ **One Channel Print Format** – If one channel format is selected, it allows you to choose from among three print formats: small font, Large font or graphic.

▲ **Printer** – Allows you to define whether or not the VLT automatically prints measured value readings. When the printer is set to print automatically, the VLT prints each time, measured value reading that it measures, at the defined measurement intervals. Refer to *Changing the Sampling Rate* on page 29.

▲ **PC Output** – Allows you to define whether or not the VLT sends measured value readings to an external PC or to GPRS adaptor.

Configuring which Channels to Print

1. From the **Prn** menu, press ⟨OK⟩. The current channel name to print appears:
   - ▽ **4Chn:** The VLT prints all the 4 channels. The following is a portion record example of the 4 channel format:

     12:01 123.4C^ 123.4C^ 123.4C^ 123.4C^

     T1ABC T2ABC T3ABC T4ABC

     0123456789ABC 31/12/08 EVERY 1 MIN

     The 4 channels format begin with 2 information harder lines and continue with 12 measured value lines, according to the sample rate.

     In this example, the VLT name is 0123456789ABC, the date is 31/12/08, and the sample rate is every 1 minute.

     T1ABC, T2ABC, T3ABC, and T4ABC are the channels name.

The last measured time is 12:01, the temperature is: 123.4C in all 4 channels and there is a high alarm (^) in all the channels.

∇ **Ch1/Ch2/Ch3/Ch4:** The VLT prints only the one chosen channel.

2. To keep the current setting, (**4Chn/Ch1/Ch2/Ch3/Ch4**) press ⌷EXIT⌷. To change the setting, press ⌷▲⌷ or ⌷▼⌷ to toggle the setting, then press ⌷EXIT⌷.

3. **Prn** appears. Press ⌷EXIT⌷ to save your changes, exit configuration and display the current measured value or continue to the next paragraph.

Configuring Print Setting for One Channel

Note: if you choose to print the all 4 channels format (**4Chn**), the printer will print only in SChr mode (small character).

1. From the **Prn** menu, press ⌷OK⌷. The current chosen channel (**Ch1..4**) appears.

2. Press ⌷OK⌷. The current print format appears:

∇ **LChr** – The VLT prints a large character format. Each record includes the following information: name of the channel, time, and measured value. The following is an example of a temperature record in large character format:

```
T1AB2^23:12 123.4C
```

In this example, the name of the channel is: T1AB2, the time is 23:12, the temperature is: 123.4C, and there is a high alarm (^).

∇ **SChr** – The VLT prints a small character format. Each record includes the following information: ID of the reordering unit (shortened), name of the channel, time, date, and value. The following is an example of a record in small character format:

0123456-T1ABC 31/12/05 12:00 123.4Cv

In this example, the (shortened) ID of the VLT unit is 0123456 (refer to *Changing the Device ID* on page 27), the channel name is: T1ABC, the date is December 31, 2005 (refer to *Changing the Time and Date* on page 27), the time is 12:00, the temperature is 123.4C, and there is a low alarm (v).

∇ **9rAP** – The VLT prints in a graph format. The graph format prints measurements in the form of a curved graph. Every value is printed next to the relevant graph point. The minimum and maximum value thresholds are shown as separate striped lines. If the value range alarms are enabled, the sign v or the sign ^ appears next to any line in which the value is outside of the defined 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 value and the alarm range are printed, but the graph itself is not printed.

3. To keep the current setting, (**LChr/SChr/9rAP**) press ⌷OK⌷. To change the setting, press ⌷▲⌷ or ⌷▼⌷ to toggle the setting, then press ⌷OK⌷.

4. Press EXIT three / four times to save your changes, exit configuration and display the current measured value or continue to the next paragraph.

Configuring the Printer and the PC output

1. From the **Prn** menu, press OK two / three times until displaying **PrOn** or **PrOF**.

2. To keep the current setting, press OK. To change the setting, press ▲ or ▼ to toggle the setting, then press OK. The current printer setting appears:

   ∇   **PrOn** – The VLT printer prints records automatically at the defined measurement intervals.

   ∇   **PrOF** – The VLT printer does not print records unless you request a printout manually. Refer to *Printing* on page 12.

3. To keep the current setting, press OK. To change the setting, press ▲ or ▼ to toggle the setting, then press OK. The current PC output setting appears:

   ∇   **PCOn** – The VLT sends records to an external PC (or to the internet by a cellular adaptor) automatically at the defined measurement intervals.

   ∇   **PCOF** – The VLT printer does not send records unless you request it to send output manually. Refer to *Printing* on page 12.

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

5. Press EXIT to save your changes, exit configuration, and display the current measured value.

CONFIGURING TEMPERATURE AND DATE FORMATS

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

1. Display the **SCAL** root menu.

2. From the **SCAL** menu, press OK. The current temperature format appears:

   ∇   **F d9** – Fahrenheit
   ∇   **C d9** – Celsius

3. To keep the current setting, press OK. To change the setting, press ▲ or ▼ to toggle the setting, then press OK. 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 measured value.

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 measured value.

CHANGING THE PASSWORD

To change the 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 measured value.

CHANGING THE DEVICE ID NAME

The VLT has a device ID that appears in 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 name consists of 13 alphanumeric characters. You can change each character individually by entering a numerical code of one or two numbers. Table 4 shows the code for setting the device ID name.

To change the device ID name:

1. Display the **SIdn** root menu. Press ⬛OK⬛. **SId** appears.
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 4.
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 measured value.

CHANGING THE CHANNELS ID NAME

Every channel has its own ID name that appears in the reports. The purpose of the channel ID is to identify a channel from the others.

The channel ID name consists of 5 alphanumeric characters. You can change each character individually by entering a numerical code of one or two numbers. Table 4 shows the code for setting the ID name.

To change the channels ID name:

1. Display the **SIdn** root menu.
2. Press ⬛OK⬛. **SId** appears. Press ⬛▲⬛ to set the ID number for channel 1.
3. 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 4.
4. Press ⬛OK⬛ to move on to the next character. Repeat this procedure for each character.
5. Press ⬛OK⬛ to move on to the next channel. Repeat this procedure for each channel.
6. When you are finished, press ⬛EXIT⬛ to save your changes. **SIdn** appears.
7. Press ⬛EXIT⬛ again to exit configuration and display the current measured value.

Table 4: Numerical Code for Setting Device & channel ID name

CHR.	CODE	CHR.	CODE	CHR.	CODE	CHR.	CODE	CHR.	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	%	38
7	7	E	15	M	23	U	31		

CHANGING THE TEMPERATURE CALIBRATION

To change the temperature calibration:

1. Display the **CALb** root menu.
2. Press ⟨OK⟩. **CAL1..4** (calibration channel #) appears.
3. To scroll among other channels for calibration (**CAL1..4**), Press ⟨▲⟩ or ⟨▼⟩.
4. Press ⟨OK⟩ . The number 0.0 or the last calibration number appears.
5. 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.
6. Press ⟨OK⟩ . The next channel **CAL1..4** appears. To calibrate other channel, repeat this procedure form step 3.
7. When you are finished, press ⟨EXIT⟩. **CALb** appears.
8. Press ⟨EXIT⟩ to save your changes, exit configuration, and display the current measured value.

Notes: This vision logger is factory calibrated with the supplied sensors. **Customers, who recalibrate it, are doing so on their responsibility.**

No calibration needed for the Humidity and Switch Channels

ERASING THE LOG

The VLT saves the last measurements values (up to 16,200 logs to each channel). To erase the log:

1. Display the **Lo9r** root menu.
2. Press ⟨OK⟩. The log is erased, and **ALr** appears.
3. The 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 VLT measures values at defined intervals. To change the intervals at which values are measured:

1. Display the **SAPr** root menu.
2. Press ⟨OK⟩. The current sampling rate appears. The sampling rate can be 0.5 minute or any value between 1 and 120 minutes, every 1 minute.
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 measured value.

CHAPTER 5   TROUBLESHOOTING

Table 5 lists common problems and suggested solutions.

Table 5: 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 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 an original Power adaptor / supply of 12V AC\DC, 2000mA (24VA) • Move the 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.
Wrong time or date	• Change the time or date. Refer to *Changing the Time and Date* on page 27. • 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 26. • Replace the Lithium battery (CR2032). Refer to *Battery Installation and Replacement* on page 10.
Printing "???? ..." or cant setup the clock	• Take out the Lithium battery (CR2032) for 5 min and install it back. Refer to *Battery Installation and Replacement* on page 10. Set the time and date. Refer to *Changing the Time and Date* on page 27.
Forget the Password	• Enter the factory default Password. Refer to *Chapter 4, Configuration* on page 18. • Restore the Password to its factory default setting. Refer to *Appendix A* on page 31.
Cannot print online help	Change the print mode to PrOn. Refer to *Printing* on page 12.

APPENDIX A   FACTORY DEFAULT SETTINGS

To restore the Vision Recorder to its factory default settings:

1. Switch the power switch off.
2. Switch the power switch back on while pressing $\boxed{\text{FEED}}$.
3. When **FAdF** appears in the display area, press $\boxed{\text{OK}}$.

Note: Restoring factory settings does not delete the measured value logs.

Table 6 lists the factory default settings.

Table 6: Factory Default Settings for VLT4 and VLTH Models

MENU ITEM	PARAMETER	DEFAULTS	LEGAL VALUES
		PASSWORD SETTINGS	
PASS	Password	$\boxed{\blacktriangle}$ $\boxed{\blacktriangledown}$ $\boxed{\text{OK}}$ $\boxed{\text{EXIT}}$	
StYP	**Active Sensor Configuration for VLT4**		
SnS1	Connector 1	sensor type T (Temp.)	T / S/ nOS
SnS2	Connector 2	sensor type T (Temp.)	T / S/ nOS
SnS3	Connector 3	sensor type T (Temp.)	T / S/ nOS
SnS4	Connector 4	sensor type S (Switch)	T / S/ nOS
ALr	**Alarm Settings**		
ALr1	**Alarm Channel 1 (T)**		
ALS1	Alarm Range Settings		resolution: 0.1 degree
LoA1	Low Alarm Threshold	-20°C	from -55°C to 150°C from -67°F to 302°F
HiA1	High Alarm Threshold	30°C	from -55°C to 150°C from -67°F to 302°F
ALd1	Alarm Delay	0 min (no delay)	0min, 10min, 20min, 30min, 60min, 120min
ALO1	Alarm Output	BuOn (buzzer On) CoOn (contact On	buOn/buOf CoOn/CoOf

MENU ITEM	PARAMETER	DEFAULTS	LEGAL VALUES
ALr2	*Alarm Channel 2 (T)*		
ALS2	Alarm Range Settings		resolution: 0.1 degree
LoA2	Low Alarm Threshold	-20°C	from -55°C to 150°C from -67°F to 302°F
HiA2	High Alarm Threshold	30°C	from -55°C to 150°C from -67°F to 302°F
ALd2	Alarm Delay	0 min (no delay)	0min, 10min, 20min, 30min, 60min, 120min
ALO2	Alarm Output	BuOn (buzzer On) CoOn (contact On	buOn/buOf CoOn/CoOf
ALr3	*Alarm Channel 3 (T)*		
ALS3	Alarm Range Settings		resolution: 0.1 degree
LoA3	Low Alarm Threshold	-20°C	from -55°C to 150°C from -67°F to 302°F
HiA3	High Alarm Threshold	30°C	from -55°C to 150°C from -67°F to 302°F
ALd3	Alarm Delay	0 min (no delay)	0min, 10min, 20min, 30min, 60min, 120min
ALO3	Alarm Output	BuOn (buzzer On) CoOn (contact On	buOn/buOf CoOn/CoOf
ALr4	*Alarm Channel 4 (S)*		
ALS4	Alarm State Settings	On	On/Off
ALd4	Alarm Delay	0 min (no delay)	0min, 10min, 20min, 30min, 60min, 120min
ALO4	Alarm Output	BuOn (buzzer On) CoOn (contact On	buOn/buOf CoOn/CoOf
EOFP	*End of Paper Alarm Settings*		
EOFP	Alarm Output	BuOn (buzzer On) CoOn (contact On	buOn/buOf CoOn/CoOf
bAtA	*Low Battery Alarm Settings*		
bAtA	Alarm Output	BuOn (buzzer On) CoOn (contact On	buOn/buOf CoOn/CoOf

MENU ITEM	PARAMETER	DEFAULTS	LEGAL VALUES
Prn		*Print Mode*	
4Chn/ Ch1/ Ch2/ Ch3/ Ch4	All channels/ channel1/ channel 2/ channel 3/ channel 4	4Chn (All 4 channels)	4chn/ch1/ch2/ch3/ch4
9rAP/Lchr/SChr	Graph/ Large/ Small One channel print font		9rAP/Lchr/SChr
PrOn/ PrOF	Printer On/ Printer Off	PrOn (Printer On)	PrOn/PrOF
PCOn/ PCOF	PC, RS232 On / Off	PCOn (PC Output On)	PCOn/PCOF
SCAL		*Standards Scale*	
C d9/ F d9	Celsius/ Fahrenheit Scale	C d9 (Celsius)	C d9 (Celsius), F d9 (Fahrenheit)
EudA/ EndA	Europe/ English date	EudA, European date, (dd/mm/yy)	EudA (dd/mm/yy), EndA (mm/dd/yy)
CloC		*Clock Set*	
SdAY	Set Date	01/01/01 (dd/mm/yy)	current date
Shr	Set Hour (time)	01:01 (24hours format)	current time
Sidn		*Set ID Name*	
Sid-	Set Device ID Name	123AB45C67DE8	13 chars
Sid1	Set Channel1 Name	123AB	5 chars
Sid2	Set Channel2 Name	123AB	5 chars
Sid3	Set Channel3 Name	123AB	5 chars
Sid4	Set Channel4 Name	123AB	5 chars
		Sensor Calibration	
CAL1	Temp. Calibration	0°	from −8.0° to 8.0°
CAL2	Temp. Calibration	0°	from −8.0° to 8.0°
CAL3	Temp. Calibration	0°	from −8.0° to 8.0°
---	Switch	---	no calibration needed
		Sampling Rate	
SAPr	Sampling Rate	10 min	from 0,5 to 120 minutes.

MENU ITEM	PARAMETER	DEFAULTS	LEGAL VALUES
StYP	**Active Sensor Configuration for VLTH** *(only the differences with the TLT4 model)*		
SnS1	Connector 1 type	TH (Temp. & Humidity)	TH/ S/ NO
SnS2	Connector 2 type	TH (Temp. & Humidity)	TH/ S/ NO

MENU ITEM	PARAMETER	DEFAULTS	LEGAL VALUES
ALr	**Alarm Settings**		
ALr1	**Alarm Channel 1 (Temperature from Sensor 1, TH)**		
ALS1	Alarm Range Settings		resolution: 0.1 degree
LoA1	Low Alarm Threshold	-20°C	from -40°C to 123.8°C from -67°F to 254.9°F
HiA1	High Alarm Threshold	30°C	from -40°C to 123.8°C from -67°F to 254.9°F
ALd1	Alarm Delay	0 min (no delay)	0min, 10min, 20min, 30min, 60min, 120min
ALO1	Alarm Output	BuOn (buzzer On) CoOn (contact On	buOn/buOf CoOn/CoOf
ALr2	**Alarm Channel 2 (Humidity from Sensor 1, TH)**		
ALS2	Alarm Range Settings		resolution: 0.1%
LoA2	Low Alarm Threshold	30%	from 0% to 100%
HiA2	High Alarm Threshold	90%	from 0% to 100%
ALd2	Alarm Delay	0 min (no delay)	0min, 10min, 20min, 30min, 60min, 120min
ALO2	Alarm Output	BuOn (buzzer On) CoOn (contact On	buOn/buOf CoOn/CoOf
ALr3	**Alarm Channel 3 (Temperature from Sensor 2, TH)**		
ALS3	Alarm Range Settings		resolution: 0.1 degree
LoA3	Low Alarm Threshold	-20°C	from -40°C to 123.8°C from -67°F to 254.9°F
HiA3	High Alarm Threshold	30°C	from -40°C to 123.8°C from -67°F to 254.9°F
ALd3	Alarm Delay	0 min (no delay)	0min, 10min, 20min, 30min, 60min, 120min
ALO3	Alarm Output	BuOn (buzzer On) CoOn (contact On	buOn/buOf CoOn/CoOf

Menu Item	Parameter	Defaults	Legal Values
ALr4	*Alarm Channel 4 (Humidity from Sensor 2, TH)*		
ALS4	Alarm Range Settings		resolution: 0.1%
LoA4	Low Alarm Threshold	30%	from 0% to 100%
HiA4	High Alarm Threshold	90%	from 0% to 100%
ALd4	Alarm Delay	0 min (no delay)	0min, 10min, 20min, 30min, 60min, 120min
ALO4	Alarm Output	BuOn (buzzer On) CoOn (contact On	buOn/buOf CoOn/CoOf

Note: There is no calibration needed for the Humidity and Switch Channels

APPENDIX B   SPECIFICATIONS

Table 7 lists the VLT's specifications.

Table 7: Specifications

DESCRIPTION	VLT4 - SPECIFICATION	VLTH - SPECIFICATION
Measurement Range	-40°/ +266°F (-40°/ +130°C)	-40°/ +185°F (-40°/ +85°C) 0-100% RH
Temp. Measurement Accuracy	± 1.0°F (+/- 0.5°C)	± 1.0°F (± 0.5°C)
Humidity Measurement Accuracy	Not applicable	In range of 10.0 - 89.9% RH: ± 2% RH, else: ± 4% RH
Ambient Operating Range	0°F to +150°F (-18°C to +65°C), 0 to 95% RH non-condensing	
Measurement Resolution	0.2°F (0.1°C)	0.2°F (0.1°C), 0.1% RH
Storage Temperature Range	-40°F to +185°F (-40°C to +85°C) **without** the Thermal Paper -40°F to +150°F (-40°C to +65°C) **with** the Thermal Paper	
Sensor Diameter	0.25 inches (6.35 mm)	0.55 inches (14 mm)
Sensor Cord Length	33 feet (10 m)	33 feet (10 m)
Alarm Contact Rating	1 Amps, 12V AC/DC	
Chart Paper Width and Length	Thermal Chart Paper , 2 inches (50.8 cm), 131 feet (40 m)	
Display (LED Display)	Numeric, 4 characters	
Primary Power Supply	VL115: 115VAC, 50/60Hz or VL220: 230VAC, 50/60 Hz	
Alternative Power Supply	12Vac/dc, 1.5 Amps (for vehicle operation, not supplied)	
Power consumption	12Vac/dc, 1550 mA while printing, 100 mA without printing	
Battery Backup	9V battery, logs up to 50 hours (not supplied)	
Clock Battery Life	3.6V Lithium battery, two years in average use (supplied)	
Repeatability	± 0.2°F (± 0.1°C)	Temp.: ± 0.2°F (± 0.1°C) Humidity: in range of : 10.0-89.9%RH: ±0.1%RH Humidity in other: ± 0.5%RH
Response Time	Temp.:5-30 sec. Event:1 sec.	Temp.:5-30 sec. Event: 1 sec. Humidity: 6-10 sec.
Size and Weight without sensors	8.2x5.3x2.7 inches (208.6x135x69mm), 4 lbs. (1.8 Kg)	

APPENDIX C   COMPONENTS

Table 8 lists the VLT's components, including optional components.

Table 8: Components

DESCRIPTION	SUPPLIED-VLT4	SUPPLIED-VLTH	PART NUMBER
VLT4/VLTH Vision Recorder	1	1	
Temperature Sensor, 33 feet (10 m)	1 + 3 Optional		VLT PROBE
Temperature and Humidity sensor		1 + 1 Optional	VLTH PROBE
Switch cable	1 + 3 Optional	1 + 1 Optional	VLS CABLE
2" thermal paper roll, 131' length (40 m)	2	2	VLPAPER
12V AC/DC, power adaptor: for USA:130V AC operation for Europe: 230V AC operation	1	1	VL115 VL230
3.6V Lithium battery	1	1	VLBAT
User's Manual	1	1	VLMANUAL
Wall mounting bracket	1	1	VLBRKT
Paper compartment cover	Optional	Optional	VLPACO
Battery compartment cover	Optional	Optional	VLBACO
IP65 clear case and hinge, 9.8x9.8x4" (25x25x10cm)	Optional	Optional	VLWPCASE
Silencer remote kit, 16.4 feet (5m)	Optional	Optional	VLSK
Extension cable for sensor, 10 feet (3m)	Optional	Optional	CABLE10H
Extension cable for sensor, 33 feet (10m)	Optional	Optional	CABLE33H
RS-232 serial data cable, 6 feet (1.8m)	Optional	Optional	RSCABLE
Power reducer from 24VDC to 12VDC	Optional	Optional	VPR
Automatic telephone dialer	Optional 115V Optional 230V	Optional 115V Optional 230V	ADTA ADTA220
Remote Alarm	Optional	Optional	RA25
DC power Cord (for vehicle Operation)	Optional	Optional	CRCPW
Cellular adaptor to internet	Optional	Optional	VLCEL

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Menu structure Ver. 0.25

To make Adjust: [▼]: Adj.
Access Menu entry: [OK]: PASS

Enter Default Password: [◄]: ASS, [▼]: - SS, [OK]: - - - S, [EXIT]: - - - -

Top-level menu items

- **StyP** — *Sensor Type Set*
  - SnS1, SnS2, SnS3, SnS4
  - T(TH) S / NoS — *Sensor type*
- **Alr** — *Alarms Set*
  - Alr1, Alr2, Alr3, Alr4, EoFP, BAtA
    - **AlS1..4** — *Set Range*
      - **LoA1..4** — *Set Low / Alarm Threshold*
      - **hiA1..4** — *Set High / Alarm Threshold*
    - **Ald1..4** — *Delay* → delay: No, 10, 20, 30, 1h, 2h
    - **AlOl..4** — *Output*
      - **buOn / buOF** — *Buzzer On/Off*
      - **CoOn / CoOF** — *Contact On/Off*
  - EoFP / BAtA
    - **buOn / buOF** — *Buzzer On/Off*
    - **CoOn / CoOF** — *Contact On/Off*
- **Prn** — *Print Mode*
  - **4Chn**: Ch1, Ch2, Ch3, Ch4 — *Channel to print*
  - **9rAP** *Graphics* / **LChr** *Large font* / **SChr** *Small font*
  - **PrOn / PrOF** — *Printer On/Off*
  - **PCOn / PCOF** — *PC Port On/Off*
  - **F d9** *Fahrenheit* / **C d9** *Celsius degrees*
  - **EudA / EndA** — *Date format: d/m/y, m/d/y*
- **SCAL** — *Standards Scale*
- **CloC** — *Clock Set*
  - **SdAy** *Set Day* → 'dd' Day, 'mm' Month, 'yy' Year
  - **Shr** *Set hour* → 'hh' Hour, 'mm' Minute
- **ChPA** — *Change Password*
  - **PASS** *Enter new sequence of 4 keys.*
  - **PASS** *Repeat the sequence to approve.*
- **Sidn** — *Set ID Name*
  - Sid- (13), Sid1 (5), Sid2 (5), Sid3 (5), Sid4 (5) — *Channel ID Name*
  - set 1st ch, set 2nd ch, set 3rd ch, set 4th ch, set 5th ch, set 6th ch, set 7th ch, set 8th ch, set 9th ch, set 10th ch, set 11th ch, set 12th ch, set 13th ch
- **CALb** — *Calibration*
  - CAL1, CAL2, CAL3, CAL4
  - *Sensor Difference*
- **Lo9r** — *Log Erase*
- **SAPr** — *Sampling Rate* → 'min' Minutes

Direct Key Operation

Operation	Keys
View Next Channel:	[OK]
Highest measure:	[▲]
Lowest measure:	[▲], [▲]
Reset High & Low:	[▼], [▼], [OK], [OK]
Print Latest report:	[PRINT], [PRINT], [OK], [PRINT]
Print Sorted report:	[PRINT], [PRINT], [OK], [PRINT]
>Select report No..:	[▲] … [▼] [OK]
Print Summary:	[PRINT], [PRINT], [▼]
Summary to PC:	[PRINT], [PRINT], [▲], [▼], [OK]
To Exit or Cancel:	[EXIT]
Buzzer mute:	[EXIT]

ID Name. Number Code Set

Chr.	Code	Chr.	Code	Chr.	Code	Chr.	Code
0	0		10	J	20	T	30
1	1	A	11	K	21	U	31
2	2	B	12	L	22	V	32
3	3	C	13	M	23	W	33
4	4	D	14	N	24	X	34
5	5	E	15	O	25	Y	35
6	6	F	16	P	26	Z	36
7	7	G	17	Q	27	-	37
8	8	H	18	R	28	%	38
9	9	I	19	S	29		

Legend:

Adj	Adjust
PASS	Password
StyP	Sensor Type Set
ALr	Alarm
AlS1..4	Alarm Range Settings
LoAl..4	Low Alarm Threshold
HiAl..4	High Alarm Threshold
Ald1..4	Alarm Delay, channel #
AlOl..4	Alarm Output, channel #
EoFP	End Of Paper
bu On/OF	Buzzer On/Off
Co On/OF	Contact On/Off
Prn	Print
9rAP/LChr/SChr/4Chn	Grap/Large/Small Font/ 4 Channels
BAtA - Low	backup battery Alarm
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

VLT4 / VLTH
4 Channel Vision Recorder
Menu structure Ver. 0.25

To make Adjust: ▼ : Adj.
Access Menu entry: OK : PASS

Enter Default Password: ▲ : ASS ▼ : - - - SS OK : - - - - S (EXIT) : - - - - -

Top-level menus: StyP (Sensor Type Set) · Alr (Alarms Set) · Prn (Print Mode) · SCAL (Standards Scale) · CloC (Clock Set) · ChPA (Change Password) · Sidn (Set ID Name) · CALb (Calibration) · Lo9r (Log Erase) · SAPr (Sampling Rate)

StyP — Sensor Type Set: SnS1, SnS2, SnS3, SnS4 — T(TH)S NoS Sensor type

Alr — Alarms Set: Alr1, Alr2, Alr3, Alr4 — EoFP BAtA

AlSl..4 Set Range: LoAl..4 Set Low Alarm Threshold; hiAl..4 Set High Alarm Threshold
Aldl..4 Delay: 'delay' 10, 20, 30, 1h, 2h
AlOl..4 Output: buOn/buOF Buzzer On/Off; CoOn/CoOF Contact On/Off
EoFP: buOn/buOF Buzzer On/Off
BAtA: CoOn/CoOF Contact On/Off

Prn — Print Mode: 4Chn, Ch1, Ch2, Ch3, Ch4 Channel to print
9rAP Graphics / LChr Large font / SChr Small font
PrOn/PrOF Printer On/Off
PCOn/PCOF PC Port On/Off

SCAL — Standards Scale: F d9 Fahrenheit / C d9 Celsius degrees; EudA / EndA Date format: d/m/T, m/d/T

CloC — Clock Set: SdAy Set Day ('dd' Day, 'mm' Month, 'yy' Year); Shr Set hour ('hh' Hour, 'mm' Minute)

ChPA — Change Password: PASS Enter new sequence of 4 keys. PASS Repeat the sequence to approve.

Sidn — Set ID Name: Sid- (13), Sid1 (5), Sid2 (5), Sid3 (5), Sid4 (5) Channel ID Name
set 1st ch, set 2nd ch, set 3rd ch, set 4th ch, set 5th ch, set 6th ch, set 7th ch, set 8th ch, set 9th ch, set 10th ch, set 11th ch, set 12th ch, set 13th ch

CALb — Calibration: CAL1, CAL2, CAL3, CAL4 — 'Sensor' Difference

SAPr — Sampling Rate: 'min.' Minutes

Direct Key Operation

Operation	Keys
View Next Channel:	OK.
Highest measure:	▲.
Lowest measure:	▼.
Reset High & Low:	▲, ▼, OK, OK.
Print Latest report:	PRINT, ▼, OK, PRINT.
Print Sorted report:	PRINT, ▲, OK, PRINT.
>Select report No.:	▲ ...... ▼, OK.
Print Summary:	PRINT, ▼, OK.
Summary to PC:	PRINT, ▲, OK.
To Exit or Cancel:	EXIT
Buzzer mute:	EXIT

ID Name. Number Code Set

Chr.	Code	Chr.	Code	Chr.	Code	Chr.	Code
0	0		10	J	20	T	30
1	1	A	11	K	21	U	31
2	2	B	12	L	22	V	32
3	3	C	13	M	23	W	33
4	4	D	14	N	24	X	34
5	5	E	15	O	25	Y	35
6	6	F	16	P	26	Z	36
7	7	G	17	Q	27	-	37
8	8	H	18	R	28	%	38
9	9	I	19	S	29		

Legend:

Adj	Adjust
PASS	Password
StyP	Sensor Type Set
ALr	Alarm
AlSl..4	Alarm Range Settings
LoAl..4	Low Alarm Threshold
HiAl..4	High Alarm Threshold
Aldl..4	Alarm Delay, channel #
AlOl..4	Alarm Output, channel #
EoFP	End Of Paper
bu On/OF	Buzzer On/Off
Co On/OF	Contact On/Off
Prn	Print
9rAP/LChr/SChr/4Chn	Grap/ Large/ Small Font/ 4 Channels
BAtA - Low	backup battery Alarm
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