CariFree

Caries Susceptibility Testing Meter

Operators Manual

Version 1.4

CariScreen
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OPERATORS MANUAL

VERSION 1.4
MARCH 2016

The CariScreen Caries Susceptibility Testing Meter is manufactured for Oral BioTech.

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CariFree

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OPERATING PRECAUTIONS AND LIMITATIONS

IMPORTANT: Oral BioTech products are designed and constructed to be safe and without risk to health when properly used (in accordance with the supplied documentation, etc.) and when the operating precautions outlined in this document are fully observed.

IMPORTANT

IT IS ESSENTIAL THAT THE USER OF THIS MANUAL IS AWARE OF THE POTENTIAL HAZARDS ASSOCIATED WITH THE UNIT AND ITS ACCESSORIES.

ALL OPERATIONS SHOULD BE FAMILIAR WITH THE SAFETY PRECAUTIONS AND WARNINGS GIVEN IN THIS SECTION PRIOR TO ATTEMPTING TO OPERATE THE UNIT.

IF THE UNIT IS USED IN A MANNER NOT SPECIFIED BY THE MANUFACTURER, THE PROTECTION PROVIDED BY THE EQUIPMENT MAY BE IMPAIRED.

The following symbol is used in this manual:

Description: **CAUTION / WARNING**

The precautions to be observed relate to the transportation and use of all types of solid state electrical/electronic instrumentation and to the handling of the CariScreen Swab devices.

These precautions are outlined on the next page:

OPERATING ENVIRONMENT AND ELECTROSTATIC PRECAUTIONS

WARNING: Do not use the unit in any area which has been or is thought to have been exposed to explosive or flammable gases or vapors.

CAUTION: Do not expose the unit to extremes of temperature (see section 9), and minimize any exposure to electrostatic charges.

UNIT HANDLING

CAUTION: Care should be taken not to drop the unit or subject it to rough physical handling.

BATTERIES

WARNING: Use only non-rechargeable alkaline batteries, or rechargeable NiMH or NiCD batteries, of types specified in section 9.

WARNING: Do not use batteries with individual cell voltages greater than 1.65V, as this will cause permanent damage to the unit.

CAUTION: Old batteries should be disposed of in accordance with your local regulations.

USE AND INSERTION OF CARISCREEN SWAB DEVICES

CAUTION: Refer to the CariScreen Swab data sheet and kit insert for details before using the device, and observe all federal, state and local environmental regulations.

CAUTION: Do not force CariScreen Swab devices into the unit. Do not attempt to insert any object other than an approved CariScreen Swab device into the unit.

CAUTION: Ensure that the CariScreen Swab device is clean and dry before inserting it into the unit.

KEYPAD BUTTONS

CAUTION: Do not use excessive force when pressing any of the buttons on the unit's keypad.

UNIT CASEWORK

WARNING: There are no Operator serviceable parts inside the unit. Removal or opening of the unit's casework will void the warranty.

REGULATORY LIMITATIONS OF USE

The CariScreen Caries Susceptibility Testing Meter has been designed to meet the following general, safety and EMC requirements:

GENERAL
- Low Voltage Directive 73/23/EEC
- EMC Directive 89/336/EEC

SAFETY
- BS EN 61010-1:2001, IEC 61010-1:2001
- UL 61010B-1
- CAN/CSA C22.2 1010.1-92

EMC
- EN 55022:1998
- EN 61000-4-2:1995
- EN 61000-4-3:1995
- FCC Class A - Sub Part J

The CariScreen Caries Susceptibility Testing Meter is manufactured under ISO 9001 controls.

DECLARATION OF CONFORMITY

The CariScreen Caries Susceptibility Testing Meter has been designed in accordance with, and satisfies the requirements of, article 11 of the Low Voltage Directive 73/23/EEC as realigned by 93/68/EEC on the harmonization of the laws of the Member States relating to electrical equipment designed for use within certain voltage limits, to the essential requirements of BS EN 61010-1:2001.

The CariScreen Caries Susceptibility Testing Meter has been type tested by EMC Projects Limited (a UKAS and CAA approved test facility and UK appointed Notified Body), and issued a Certificate of Compliance No. 5569/03 to the following EMC standard:

EN61326 : 1997

Covering:

Radiated Emissions (EN 55022 : 1998)
Electrostatic Discharge (EN 61000-4-2 : 1995)
Radiated Immunity (EN 61000-4-3 : 1995)

Satisfying the EMC Directive(s) 89/336/EEC and 92/31/EEC as realigned by 93/69/EEC.

TABLE OF CONTENTS

1 INTRODUCTION

The CariScreen system is intended to provide a fast, easy screening test for dental caries via the use of an ATP bioluminescence test.

The CariScreen system consists of two elements: the CariScreen hand-held Caries Susceptibility Testing Meter and the disposable CariScreen Caries Susceptibility Testing Swab.

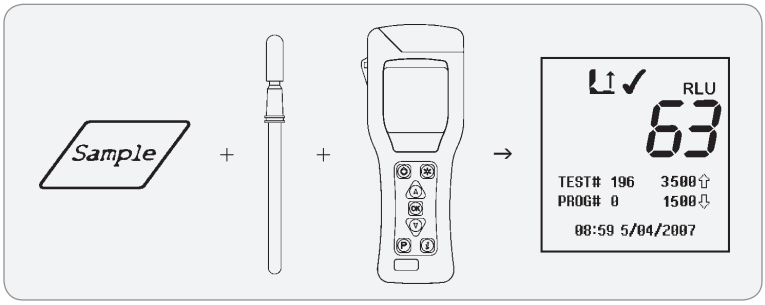
This Operator's Manual provides a detailed description of how to use the CariScreen Meter, and how to handle maintenance and troubleshooting.

For full details on the CariScreen Swab device, please refer to the CariScreen Swab kit insert.

1.1 PRINCIPLE OF OPERATION

The CariScreen Swab device uses bioluminescent chemistry technology to convert an *invisible* concentration of ATP (present in the swabbed sample) into a *visible* light output.

The low-level light output is measured by the CariScreen Meter to produce both a quantitative and qualitative result.



The quantitative result is a number in the range 0 to 9999, expressed in terms of Relative Light Units – RLUs.

Although Relative Light Units are not a tangible unit of light measurement (such as lux), they do provide a real measure of the amount of light output by the ATP bioluminescent test.

In this application, 1 RLU is roughly equivalent to 1 fmol of ATP.

The quantitative RLU reading is further compared against user programmable thresholds to provide an overall qualitative low risk (✓) or high risk (!) (✗) result.

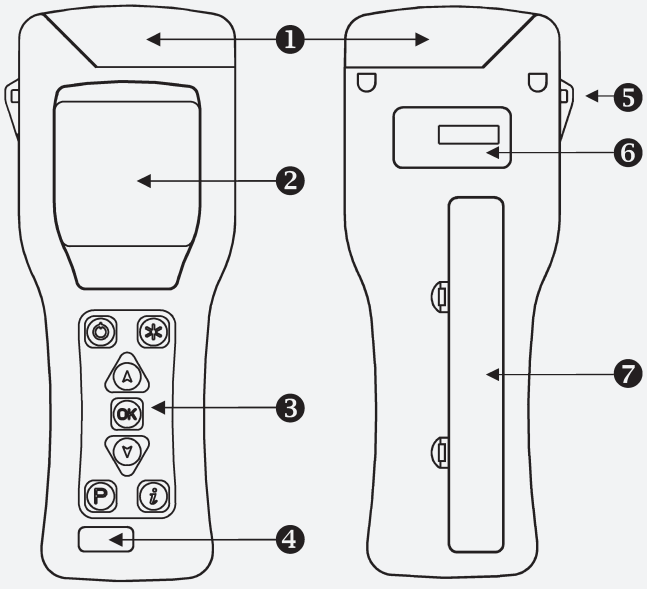
The CariScreen Meter is a highly sensitive measurement device and, as such, should be treated with respect at all times.

2 BASIC UNIT OPERATION

IMPORTANT: Please ensure that you have read and understood all the "Operating Precautions and Limitations of Use" section at the beginning of the manual before continuing any further.

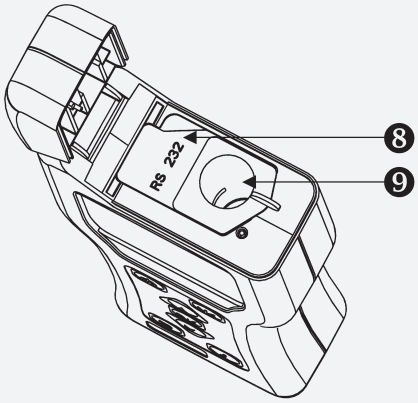
2.1 UNIT DESCRIPTION

The unit has the following external front and rear features:



1. Unit lid
2. Liquid crystal display
3. Keypad
4. Front label
5. Neck strap anchor
6. Serial number label
7. Battery compartment

Opening the lid reveals the following internal features:

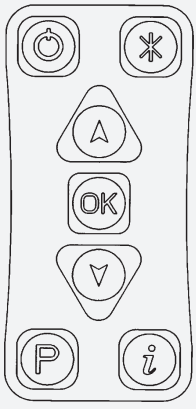


8 RS232 connector cover

9 Protective pocket and sample insert port

2.2 KEYPAD SYMBOLS

The keypad is arranged with the following buttons:



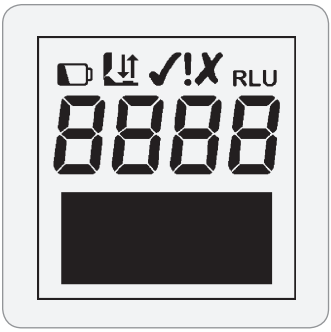
- Power on/off button
- Menu select button
- Up/increase button
- Start/accept button
- Down/decrease button
- Program select button
- Statistics shortcut button

The function of the buttons is explained in more detail in the following sections.

TIP: Holding down the △ or ▽ button will make it automatically repeat. The longer you hold it down, the faster it will go.

2.3 DISPLAY LAYOUT AND ICONS

The liquid crystal display has the following layout:



The upper half of the display contains the status icons and the large RLU result digits:

RLU 8888	Sample measurement reading in Relative Light Units (RLUs)
✓	Result "Low Risk"
!	Result "At Risk"
✗	Result "At Risk"
	Lid icon – flashes when the lid needs to be closed
	Insert icon – arrow flashes when the CariScreen Swab device should be inserted
	Remove icon – arrow flashes when a CariScreen Swab device needs to be removed
	Low battery icon

2.4 FITTING THE BATTERIES

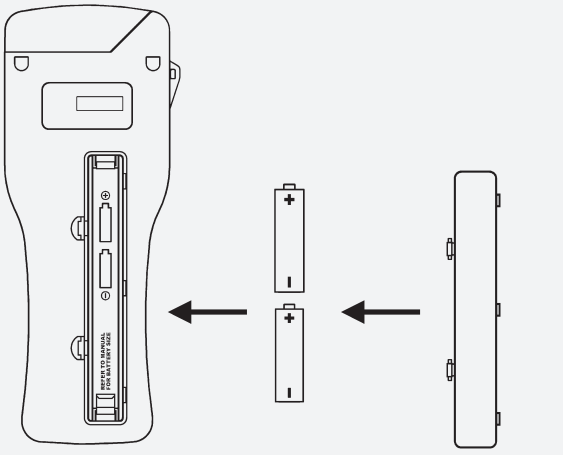
The unit is designed to operate from both non-rechargeable alkaline batteries and rechargeable Nickel Metal Hydride (NiMH) or Nickel Cadmium (NiCD) batteries:

Type	Nominal Voltage	Relative Capacity
Alkaline	1.5V	1.0
NiMH	1.2V	0.6
NiCD	1.2V	0.5

⚠ **WARNING:** Never mix batteries of different types, and never use recharged alkaline batteries as these are prone to leaking and overcharging and will cause permanent unit damage.

The unit requires two batteries of the size AA, LR6 or E91.

The batteries are fitted by unclipping the battery compartment cover on the back of the unit and inserting two batteries with the positive ends (+) towards the top of the unit:



(1) Remove cover (2) Insert batteries (3) Replace cover

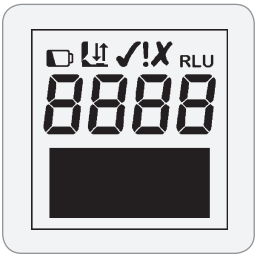
⚠ **CAUTION:** Be careful not to insert the batteries backwards, as this may cause permanent damage to the unit's electronics. When the batteries are inserted correctly, the unit automatically

turns on and enters the clock set-up mode. Refer to section 4 on how to set the time and date.

TIP: For best results, use a quality brand of alkaline batteries and replace them as soon as they become low (see section 2.6).

2.5 TURNING ON THE UNIT

To turn the unit on, press the ⏻ button. The unit will beep once and display the power-up self-check display:



Following this, the unit will perform its internal self-calibration routine (see section 2.7).

NOTE: If the clock is not set, the unit will enter the time and date set-up mode first (see section 4.5) and then perform its self-calibration when the clock is set.

NOTE: If the batteries are dead, the unit may not turn on at all; or may turn on, flash the 🔋 icon and beep three times, and then turn off again. If this happens, change the batteries.

2.6 LOW BATTERY INDICATOR

The 🔋 icon indicates the state of the batteries:

🔋 Icon	→	Battery State
Not visible	→	Good
Visible	→	Low – replace soon
Flashing	→	Flat – replace now!

When the batteries are dead, the unit will flash the 🔋 icon, beep three times, and then automatically turn off.

NOTE: If the batteries are too low, the unit will not turn on at all.

TIP: Store the unit in a cool dry place when not in use, as elevated temperatures will shorten the battery life.

2.7 INTERNAL SELF-CALIBRATION

When the unit is turned on (see section 2.5), it performs an internal self-calibration check, with the display counting down from 60 to 0 seconds:

NOTE: During self-calibration, there must be no CariScreen Swab device in the unit and the lid must remain closed. If the icon is shown with the arrow flashing, open the lid and remove the CariScreen Swab device from the unit. If the icon is flashing, close the lid.

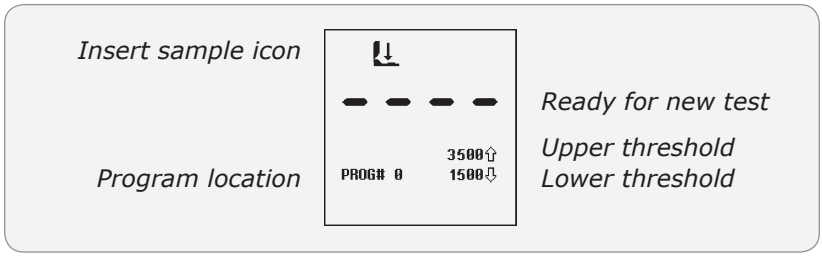
The unit will automatically perform a zeroing cycle under the following circumstances;

a) When the instrument is in continuous operation for a prolonged period of time (typically >30 minutes), and
b) When the instrument is used in an environment where the temperature changes significantly (typically >5°C).
c) The user presses and holds the OK button for 1 second.

When self-calibration is complete, the unit is ready to perform a measurement.

2.8 READY FOR USE

Once the unit has successfully performed its self-calibration, it is ready to perform a measurement:



At this point several keypad options are available, all of which are explained in more detail in the following sections:

Button	Action	Section
(i)	Show statistical result data	4.4
(✱)	Access setup menu options	4
(P)	Not used*	N/A
(OK)	Start new measurement	3
(△) (▽)	View previous test results	4.2
(⏻)	Turn off unit	2.9

**Not used oncurrent protocol; may be used in the future.*

NOTE: The (✱) button performs different functions depending on the unit mode – see individual sections for specific details.

2.9 TURNING THE UNIT OFF

To turn the unit off, press the (⏻) button. The unit will beep once and the display will go blank.

NOTE: To avoid accidental turn off, the (⏻) button is disabled while the unit is performing a sample measurement.

2.10 POWER SAVING STANDBY MODE

If the unit is turned on, but has not been used for more than 10 minutes, it will automatically enter a power saving standby mode.

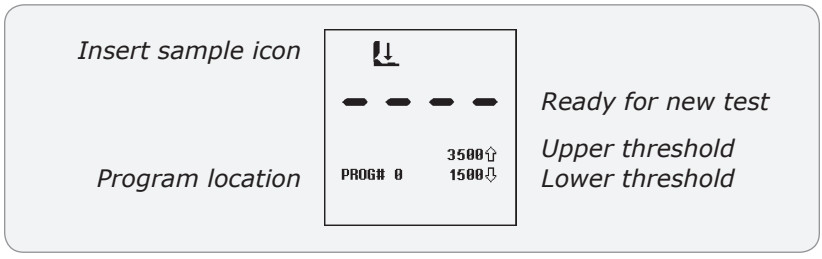
To turn the unit back on, simply press the ⏻ button, as per section 2.5.

3 SAMPLE MEASUREMENTS AND TEST RESULTS

IMPORTANT: Please refer to the CariScreen Swab data sheet and Kit Insert for full details on how to use the CariScreen Caries Susceptibility Testing Swab device.

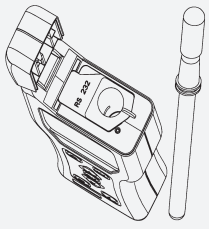
3.1 TAKING A MEASUREMENT

With the unit turned on, and having performed its internal self-calibration checks, it is then ready to perform a new sample measurement:



The display shows the **PROG** number, the program upper (⇧) and lower (⇩) thresholds, and the total number of test results stored in the memory (e.g. 47).

To perform a sample measurement, follow the steps below:

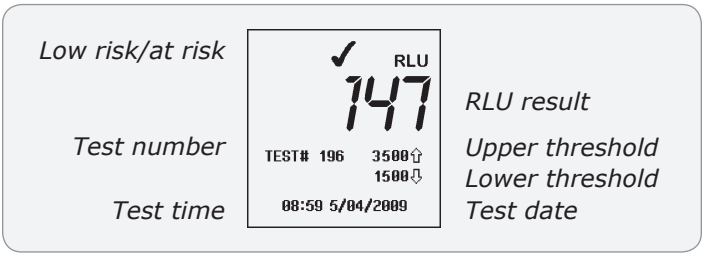


- Activate the CariScreen Swab device (see Kit Insert)
- Ensure that the outside of the CariScreen Swab device is clean & dry
- Open the unit lid, insert the CariScreen Swab device into the unit, and close the lid
- Press the OK button and wait 15 seconds for the result to be displayed

While the measurement is being performed, the display shows the new test number while the timer counts down to zero:

NOTE: For consistent results, always keep the unit upright and steady while it is performing a measurement to ensure that the liquid in the CariScreen Swab device is at the bottom of the tube.

When the measurement is complete, the new test reading and low risk/at risk result (see section 4.1) are displayed:



TIP: For best results, and to prevent dust and dirt build–up, always keep the unit lid closed when not inserting or removing a CariScreen Swab device.

⚠ **WARNING:** Always ensure that the exterior of the CariScreen Swab device is clean and dry before inserting it into the unit. Never insert anything other than a CariScreen Swab device into the unit. Never insert a device when the protective pocket has been removed for cleaning (refer to section 5.3).

4 SETUP MENU OPTIONS

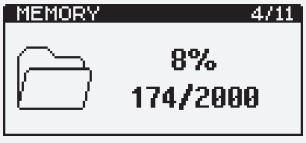
With the unit turned on, the Set-up Menu can be accessed by pressing the ✳ button.

The following seven menu options are then available:

Not used*

Not used*

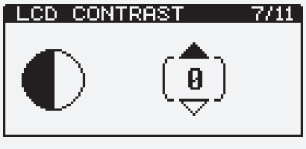
Not used*



View stored test results

View statistical data

Set clock time and date



Adjust LCD contrast

**Not used oncurrent protocol; may be used in the future.*

Use the △ and ▽ buttons to scroll through the menu list, and then press the OK button to select the required menu option, or the ✳ button the exit the menu.

4.1 RESULT THRESHOLDS

The Program (**PROG** 0 to 250), defines a pair of upper (⇧) and lower (⇩) thresholds for the measurement result, and Program 0 is preset at the factory to thresholds of 1500 and 3500.

When a measurement reading is displayed, it is compared against these thresholds to determine the overall risk level:

Banding	Result
Reading ≤ lower threshold (⇩)	✓ "Low Risk"
Reading > lower threshold (⇩) but ≤ upper threshold (⇧)	! "At Risk"
Reading > upper threshold (⇧)	✗ "At Risk"

NOTE: The program number and threshold values do not need to be changed at any time.

4.2 VIEWING STORED TEST RESULTS

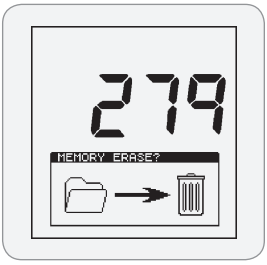
The unit can indefinitely store a maximum of 2000 test results in its internal memory, even when the batteries are flat or removed.

To view these stored test results, select the **MEMORY** menu option (see section 4), then use the (△) and (▽) buttons to scroll through the test results, pressing the (OK) button to exit:

4.3 ERASING THE TEST RESULTS MEMORY

The entire test results memory can be cleared using the **MEMORY ERASE** function, by first selecting the **MEMORY** menu option (see section 4.2) and then pressing and holding down the (✱) button for

2 seconds. The display will then show the total number of stored results to be erased:



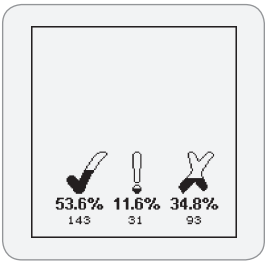
To accept and start the erase function, press and hold down the (OK) button *for 1 second*, or press any other button to exit the option.

> **⚠ WARNING**
> *Once the test results have been erased from memory they are permanently deleted and can no longer be viewed.*

NOTE: Once started, the erase function can not be stopped, and will take about 30 seconds to erase a full 2000 results.

4.4 VIEWING STATISTICS AND AT RISK READINGS

The test results database can be analyzed by selecting the **STATISTICS** menu option (see section 4) to display a simple comparison of all the stores results:



TIP: The (i) button also provides a direct shortcut to this function.

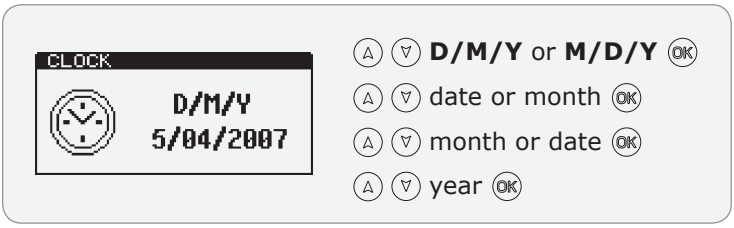
The (△) and (▽) buttons can then be used to scroll through all of the at risk (✗) test results, pressing the (OK) button to exit:

4.5 SETTING THE CLOCK TIME AND DATE

To set or change the clock time, date, and format, select the **CLOCK** menu option (see section 4). Then use the △ and ▽ buttons change each time and date value, followed by the OK button to accept each new value in turn.

First the time is set (style → hours → minutes), which can be configured as either a 12-hour clock (select **AM** or **PM**) or a 24-hour clock (select **24H**):

Next the date is set (format → date/month → month/date → year), which can be configured for either European format (select **D/M/Y** for date, month, year) or American format (select **M/D/Y** for month, date, year):



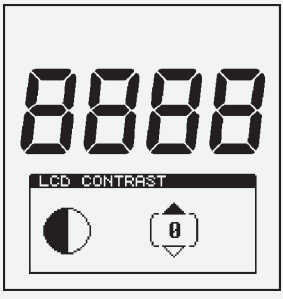
TIP: Pressing the ✱ button at any point will exit the clock set-up mode, leaving the time and date unchanged.

NOTE: The clock does not have automatic daylight saving adjustment. If this is required, the time must be manually changed when necessary.

4.6 ADJUSTING THE LCD CONTRAST

The contrast of the LCD screen is factory set at its optimum level for normal operating conditions. However, in extremes of temperature the display may appear too dark or light.

This setting can be manually adjusted by selecting the **LCD CONTRAST** menu option (see section 4) and using the △ and ▽ button to increase or decrease the contrast level, followed by the OK button to store the new setting:



△ darker (**+1** to **+5**)
⇵ normal (**0**)
▽ lighter (**-1** to **-5**)

5 OPERATOR MAINTENANCE

The CariScreen Caries Susceptibility Testing Meter does not require any routine operator or service engineer maintenance.

5.1 CLEANING THE CASEWORK

Clean the unit casework when required using a dry or *slightly damp* cloth only.

⚠ **WARNING:** Never clean the unit using a wet cloth, or by washing it under running water.

⚠ **CAUTION:** Do not use solvents or strong cleaning solutions as these may attack and deform the unit's plastic components, and seriously degrade its performance.

5.2 REPLACING THE BATTERIES

For best results, the batteries should be replaced when the low battery icon appears.

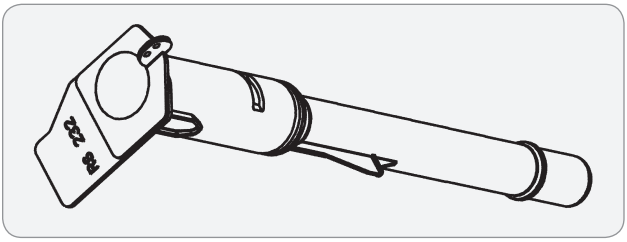
Refer to section 2.4 for how to fit new batteries – taking care not to mix the old batteries with the new ones.

IMPORTANT: Always dispose of old batteries in accordance with your local regulations.

5.3 CLEANING & REPLACING THE PROTECTIVE POCKET

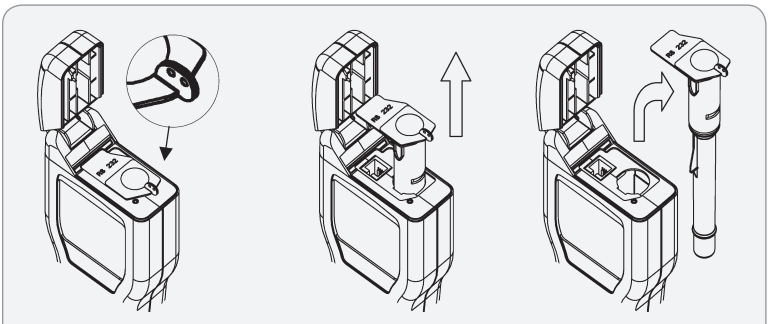
The unit is designed with a special protective pocket, which can be removed for cleaning or replacement if required.

See diagrams and cautionary notes below:



⚠ **WARNING:** Always turn off the unit before removing the protective pocket.

To remove the protective pocket, open the unit's lid, tightly grasp the finger grip of the pocket, gently pull the pocket upwards, and remove it from the unit.



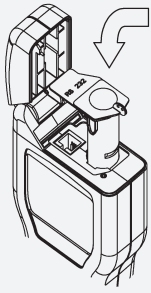
(1) Grasp finger grip (2) Pull pocket upwards (3) Remove pocket

⚠ **CAUTION:** Great care should be taken when removing the pocket not to damage it or the surrounding casework. Do not use excessive force. Never use a tool to pry the pocket out.

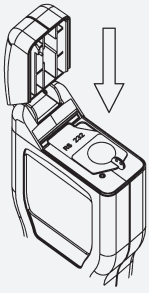
Carefully clean the interior of the pocket using water or a very mild detergent solution – ensuring that the pocket is completely dry and clean before placing it back into the unit.

⚠ **WARNING:** Do not use solvents or other strong chemicals as these will degrade the clear optical section of the pocket and affect the performance of the unit.

To replace the pocket, *carefully* insert the pocket ensuring that it is correctly oriented, and then push it fully down until it clicks into position.



(1) Insert pocket in the orientation shown



(2) Push fully down until it clicks into place

⚠ **WARNING:** Do not use excessive force when replacing the pocket. If the pocket jams during insertion, remove it fully, check for obstructions or damage, and then try again.

Finally, ensure that the black rubber RS232 cover is pushed down and that the lid can be fully closed

6 TROUBLESHOOTING

This section lists typical problems that might be encountered when using the unit, and their possible causes.

Some problems and causes can be rectified by the operator, while others may require technical assistance:

Severity Action Required	
✓	This indicates a cause which can be rectified by the operator.
✗	This indicates a cause which may require technical attention for rectification. Contact Oral BioTech for further assistance.

6.1 UNIT BEEPS

During normal use, the unit emits a variety of different beeping sounds:

Beep Type	Possible Causes
Short high-pitched tone	✓ Unit turned on or off ✓ Sample measurement started ✓ Results memory being erased
Long high-pitched tone	✓ Unit self-calibration complete ✓ Sample measurement complete ✓ Results memory erase complete
Long low-pitched tone	✓ Invalid date entered ✓ **PROG** thresholds not set-up ✓ Invalid program threshold limits entered
Two short high-pitched tones	✓ Self-calibration required –remove CariScreen Swab device and close the lid
Three short high-pitched tones	✓ Clock set-up required ✓ Batteries are low ✓ Memory erase requested ✓ Unit error – see section 6.3

6.2 TROUBLESHOOTING TIPS

If the unit appears to be malfunctioning for any reason, check out thoroughly for any obvious damage to the case, LCD display, lid, etc., caused by dropping or excessive physical mishandling.

The following table lists typical symptoms and their possible causes.

Symptom	Possible Causes
Unit will not turn on when the ◎ button is pressed	✓ Batteries are low ✓ Batteries are the wrong type ✓ Batteries inserted incorrectly ✗ Unit or keypad damaged or faulty
Unit will not turn off when the ◎ button is pressed	✓ Unit is busy performing a reading or self-calibration operation ✓ Unit lockup – remove the batteries for 10 seconds, then insert them again ✗ Unit or keypad damaged or faulty
Unit turns off unexpectedly	✓ Batteries are low ✓ Batteries are loose within the battery compartment ✓ Unit dropped or subjected to shock or vibration ✓ Unit not used for 10 minutes and automatically turns off into standby mode ✗ Unit damaged or faulty
Unit beeps when turned on, but nothing is displayed	✓ Batteries are low ✗ Unit or display damaged or faulty

The real time clock reverts to 12:00 01/01/2000	✓ Batteries have been changed ✓ Batteries are low ✓ Batteries are loose within the battery compartment ✓ Unit dropped or subjected to shock or vibration ✗ Unit or display damaged or faulty
The display appears washed out or very dark	✓ Unit is too hot or too cold ✓ Unit is being used in inappropriate lighting ✓ LCD contrast incorrectly adjusted (see section 4.6) ✗ Unit or display damaged or faulty
Segments missing from display or jumble displayed	✓ Display window is dirty ✗ Display window is scratched or dented ✗ Display or unit damaged or faulty
Keypad button has no effect when pressed	✓ Some buttons only work when selecting particular unit functions ✓ Lid not fully closed ✗ Keypad or unit damaged or faulty
Unit lid will not close properly or springs open during use	✓ Protective pocket incorrectly or not fully inserted ✓ RS232 connector cover is interfering with the lid (see section 5.3) ✓ CariScreen device incorrectly or not fully inserted ✗ Lid or unit casework damaged
Measurement reading always shows zero RLU, or is much lower or higher than expected	✓ Incorrect use of CariScreen Swab device ✓ CariScreen Swab devices are out-of-date ✓ Unit being used in an unstable environment – turn off unit and then back on again ✓ Protective pocket dirty or severely scratched ✗ Protective pocket damaged ✗ Unit damaged or faulty

6.3 UNIT ERROR CODES

During normal operation, the unit performs various self-checks on its internal components. If a problem is detected, the display will show an error number:

Pressing the (i) button shows additional engineering information, which should be recorded and included on any product returns report.

TIP: Most problems may be temporary and can be cleared by pressing the (OK) button, or by removing the batteries for 30 seconds and inserting them again. If the problem persists, please seek technical assistance.

Error Code	Possible Causes
E2 *Temperature out of range*	✓ The unit is being used outside of the specified operating temperature range (see section 9) ✓ The unit has been stored in an environment which is outside of its specified operating temperature range- allow unit to acclimatize before use ✗ Unit damaged or faulty
E3 *Erratic measurement*	✓ Unit environment unstable or used in an area of high electromagnetic noise ✓ Unit tilted while measurement being performed ✓ Unit lid damaged and allowing light in ✓ Protective pocket dirty or severely scratched ✗ Unit damaged or faulty

E4 *User settings undefined*	✓ The user configurable settings are undefined – check and re-set the **CLOCK** format, **USER#**, **PLAN#** and **PROG** data
E5 *Program, Test Plan or User ID undefined*	✓ Program thresholds not defined, and have been to the default values (10⇧, 30⇩) ✓ Test Plan data not defined ✓ User ID not defined
E6 *Calibration self-checks failed*	✓ Unit operating environment unstable ✓ Protective pocket dirty or severely scratched ✓ Lid not fully closed ✗ Lid seal damaged ✗ Protective pocket damaged ✗ Unit damaged or faulty
E7 *Internal memory failure*	✓ Batteries are low or loose ✗ Unit's memory damaged or faulty
E8 *Internal reader fault*	✓ Batteries are low or loose ✗ Unit's sample reader is damaged or faulty
E9 *Internal error*	✓ Batteries are low or loose ✓ Unit dropped or subjected to shock or vibration ✗ Unit damaged or faulty

7 WARRANTY AND RETURNS

The supplier warrants the CariScreen Susceptibility Testing Meter, when purchased new, to be free from defects in materials and workmanship and will repair or replace, at their discretion, any CariScreen unit which, used under proper conditions, exhibits such defects.

Under the terms of this warranty, the product must be returned in the original packaging, shipping prepaid, to Oral BioTech.

Contact Oral BioTech to receive authorization to return the instrument, and enclose a detailed description of the problem.

7.1 WARRANTY DURATION

This warranty is provided to the original purchaser for one year from the date of purchase.

In no event will Oral BioTech be liable for indirect, incidental or consequential damages; the original user's remedies being limited to repair or replacement of the unit at the manufacturer's option.

7.2 PARTICULAR EXCLUSION

Unauthorized modification of any part of the CariScreen Susceptibility Testing Meter or the attachment of any peripheral not supplied by Oral BioTech will void this Warranty.

⚠ **WARNING:** Use only the accessories and consumables supplied by Oral BioTech. The use of any non Oral BioTech supplied accessories and consumables will invalidate the warranty.

8 GLOSSARY OF TERMS AND ABBREVIATIONS

Abbreviation	Term
ATP	Adenosine Triphosphate – energy carrier molecule
EMC	Electro-Magnetic Compatibility
fmol	Femtomole – 10^{-15} moles
HACCP	Hazard Analysis Critical Control Point
LCD	Liquid Crystal Display
NiCD	Nickel Cadmium – rechargeable batteries
NiMH	Nickel Metal Hydride – rechargeable batteries
Reading	Measurement value in RLUs
Result	Measurement "Low Risk" (✓), "At Risk" (**!**) or (✗)
RLU	Relative Light Units (unit of measurement)
RS232	Serial communications protocol for connecting the unit to a PC – Not Used
Unit	The CariScreen Caries Susceptibility Testing Meter
Swab Device	The CariScreen Caries Susceptibility Testing Swab

9 TECHNICAL SPECIFICATIONS

General	
Unit dimensions (W x H x D)	72mm x 191mm x 32mm
Unit weight (including batteries)	approx. 260g
Operating temperature range	5°C to 40°C
Relative Humidity range	20 - 85%, non-condensing
Storage temperature range	-10°C to 40°C
Relative Humidity Range	20 - 95%, non-condensing
Unit Details	
Measurement range	0 to 9999 RLUs
Measurement noise	15 seconds
Measurement time	±5% or ±5 RLUs
Programmable result thresholds	251 programs
Result memory size	2,000 tests
Serial interface	EIA-232 compatible

Batteries	
Battery Size (2 off)	AA, LR6 or E91
Battery Types:	
Non-rechargeable	nom. 1.5V Alkaline
Rechargeable (externally charged)	nom. 1.2V NiMH or NiCD
Battery Capacity (for 2600mAh Alkaline):	
Standby mode (at 20°C)	min. 6 months
Continuous reading	min. 500 tests

www.carifree.com

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