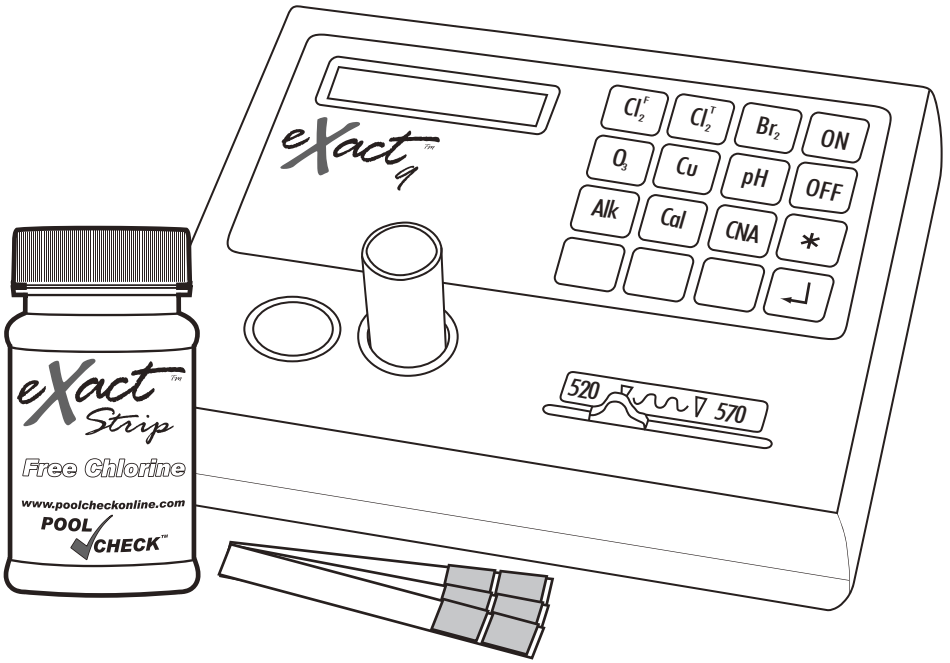
POOL CHECK

Part Number: SP370

eXact 9™

Instruction Manual



Industrial Test Systems, Inc.
1875 Langston Street, Rock Hill, SC 29730
Phone: (800) 861-9712, (803) 329-9712, Fax: (803) 329-9743
WWW.POOLCHECKONLINE.COM

Revision 07/25/05

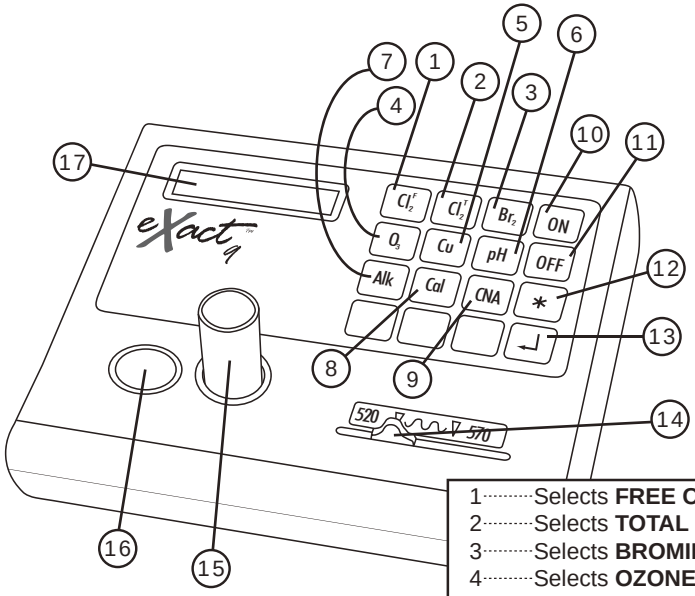
TABLE OF CONTENTS

Components & Specifications

Description	Quantity Included	Re-Order Number
eXact 9-Way Meter	1	SP370 (full kit)
eXact Plastic Vial	4	PT524/5
eXact Carrying Case	1	N/A
Cleaning Brush	1	N/A
Light-Blocking Cap	1	N/A
Tablet Crushing Rod	1	N/A
eXact CL-Free	1 bottle of 50 eXact Strips	481647
eXact CL-Total	1 bottle of 50 eXact Strips	481648
eXact PH	1 bottle of 50 eXact Strips	481655
eXact AL	1 bottle of 50 eXact Strips	481651
eXact Br	1 bottle of 50 eXact Strips	481649
eXact O_3	1 bottle of 50 eXact Strips	481653
eXact Cu	1 bottle of 50 eXact Strips	481654
eXact Cy	1 - 20mL bottle of liquid reagent (enough for apx. 100 tests)	481652
eXact Hardness	1 box of 100 tablets (for 50 tests)	PM254
eXact Instruction Manual	1	XE9INST
AA Alkaline Batteries, 1.5v	6	***SOLD SEPARATELY***

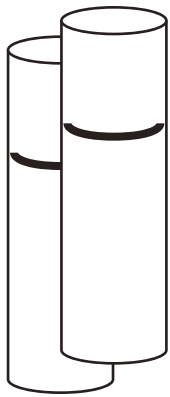
Instrument Type	Single-beam colorimeter with built-in color filters and pre-programmed test calibrations
Operating Wavelengths	520 and 570 nm, built-in filters. Automatic verification by test program.
Filter Bandpass	+/- 20 nm
Display	Intelligent 2 x 16 character alphanumeric display. Test identification and prompts in English, French, German, Spanish, & Italian. Direct-reading of test results in mg/L (ppm)
User Selectable Options	Select display language and units
Power	9v (6 x 1.5v) alkaline batteries. Power management system with auto switch off.
Size	Instrument only 200 x 160 x 55 mm (7.87 x 6.30 x 2.17 in)
Weight	760g (1.68 lb)
Test Vials	10 ml plastic test tubes, 20 mm (0.79 in) Outer Diameter, 18 mm (0.70 in) path length

Specifications Continued



1 ..... Selects **FREE CHLORINE** parameter
2 ..... Selects **TOTAL CHLORINE** parameter
3 ..... Selects **BROMINE** parameter
4 ..... Selects **OZONE** parameter
5 ..... Selects **COPPER** parameter
6 ..... Selects the **pH** parameter
7 ..... Selects **ALKALINITY** parameter
8 ..... Selects **CALCIUM HARDNESS** parameter
9 ..... Selects **CYANURIC ACID** parameter
10 ..... Turns the unit **ON**
11 ..... Turns the unit **OFF**
12 ..... Used when selecting **USER OPTIONS**
13 ..... **ENTER / READ KEY**
14 ..... Selects **WAVELENGTH / FILTER**
15 ..... **TEST CHAMBER**
16 ..... Spare opening for **EXTRA VIAL**
17 ..... **LCD DISPLAY**

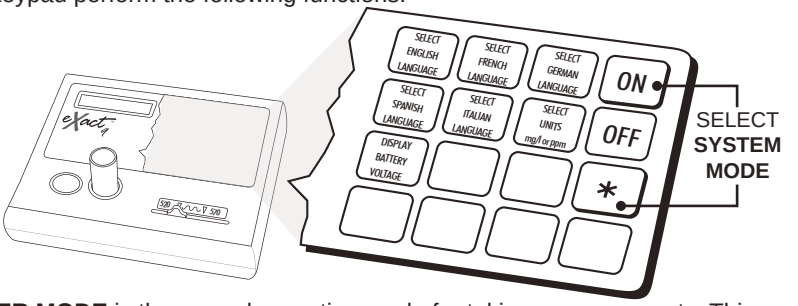
Parameter	Detection Range (in ppm)	Detection Sensitivity (in ppm)
Free Chlorine	0 - 5.00	0.01
Total Chlorine	0 - 5.00	0.01
Bromine	0 - 10.0	0.04
Ozone	0 - 2.00	0.01
Copper	0 - 5.0	0.03
pH	6.8 - 8.4	0.05 pH units
Alkalinity	0 - 500	10
Cyanuric Acid	0 - 200	2
Calcium Hardness	0 - 500	5



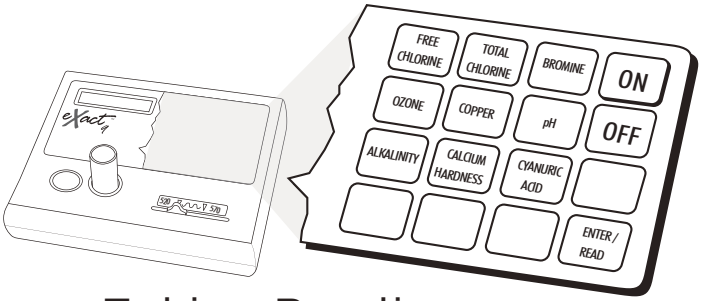
Operating Modes

The eXact™ 9 Photometer has two distinct operating modes - the **SYSTEM** mode and the **PHOTOMETER** mode.

- **SYSTEM MODE** is used to set the system options, such as language. To enter the **SYSTEM MODE**, simultaneously hold down the (*) and (ON) keys until the unit beeps and the LCD display shows the word *"SYSTEM"*. Once in **SYSTEM MODE**, keys on the keypad perform the following functions:



- **PHOTOMETER MODE** is the normal operating mode for taking measurements. This mode is the default mode when starting the eXact™ 9 meter. Turn on the unit, press the (ON) key until the unit beeps. The keys on the keypad perform the following functions:



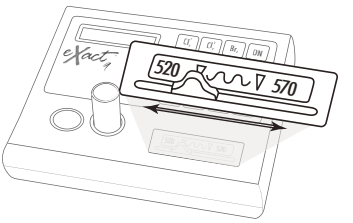
Taking Readings

The eXact™ 9 is very simple to use. The screen displays and guides the user towards the test results. The following sections describe how to get the best out of your eXact™ 9 system.

Program Numbers

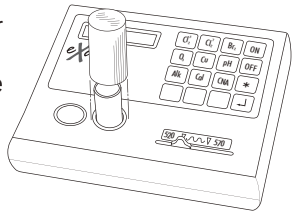
The eXact™ 9 is a direct-reading colorimeter designed for use in conjunction with eXact™ Strips. The test calibrations are pre-programmed into the instrument and are defined by individual keys on the keypad.

Test procedures are carried out at one of two wavelengths to optimize the sensitivity of each test. The required wavelength must be set manually as specified in each test procedure or as shown on the display. The colorimeter will verify the wavelength setting for each test and will not allow the user to proceed unless the correct setting is chosen. To adjust the wavelength, move the wavelength slider left or right as illustrated.



Taking Readings Continued

Light Shield

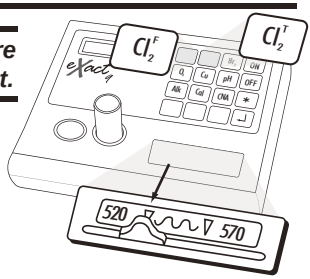


A light shield is provided with the eXact™ 9. This shield fits over the test chamber and prevents stray light from reaching the photocell and influencing the results. It is NOT necessary to use the light shield when using the eXact™ 9 indoors or under shaded outdoor light. The light shield should however be used when working outdoors in direct / strong sunlight. The light shield is also recommended when performing turbidity-based tests, such as Cyanuric Acid, under bright or variable lighting conditions. The test instructions will indicate when the light shield is recommended.

Test Procedures

Free Chlorine

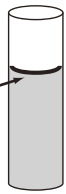
For best results please read the entire procedure before performing the test.



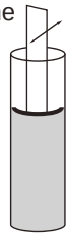
• For Free Chlorine & Total Chlorine use a wavelength of 520nm •

1. Press the ON key to start the unit. By default the instrument starts with the last test program that was used.
2. Push the Cl_2^F key to select Free Chlorine.
3. Push the ↵ key to activate the test program. The following text will be displayed on the LCD:

4. Fill one plastic vial to the marked 10ml line with your water sample to be tested.



5. Place the vial into the test chamber and push the ↵ key. Be sure the vial is fully seated in the test chamber.
6. *Without removing the vial from the test chamber*, remove one **eXact™ Strip Cl - FREE** and dip into the vial for **20 seconds** with a gentle back-and-forth motion.



7. Remove the strip and discard.
8. Push the ↵ key and read the LCD display.

9. Record your results.

** If testing for Total Chlorine, do not discard the sample. Proceed to the next section below.*

Total Chlorine

1. For Total Chlorine results, **DO NOT** remove the sample vial used for Free Chlorine.
2. Press the Cl_2^T key followed by the ↵ key. The following will be displayed:
3. *Without removing the vial from the test chamber*, remove one **eXact™ Strip Cl - TOTAL** and dip into the vial for **20 seconds** with a gentle back-and-forth motion.

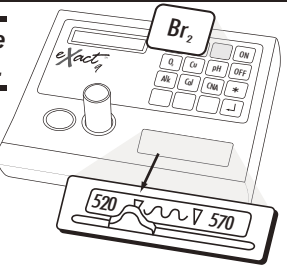
4. Remove the strip and discard.
5. Push the ↵ key and read the LCD display.

6. Record your results.

Test Procedures

Bromine

For best results please read the entire procedure before performing the test.



• For Bromine use a wavelength of 520nm •

1. Press the ON key to start the unit. By default the instrument starts with the last test program that was used.
2. Push the Br_2 key to select Bromine.
3. Push the ↵ key to activate the test program. The following text will be displayed on the LCD:

4. Fill one plastic vial to the marked 10ml line with your water sample to be tested.

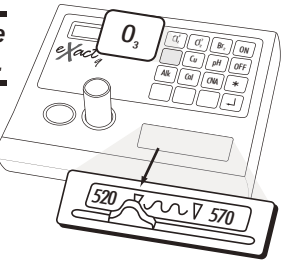
5. Place the vial into the test chamber and push the ↵ key. Be sure the vial is fully seated in the test chamber.
6. *Without removing the vial from the test chamber*, remove one **eXact™ Strip Br** and dip into the vial for **20 seconds** with a gentle back-and-forth motion.

7. Remove the strip and discard.
8. Push the ↵ key and read the LCD display.

9. Record your results.

Ozone

For best results please read the entire procedure before performing the test.



• For Ozone use a wavelength of 520nm •

1. Press the ON key to start the unit. By default the instrument starts with the last test program that was used.
2. Push the O_3 key to select Ozone.
3. Push the ↵ key to activate the test program. The following text will be displayed on the LCD:

4. Fill one plastic vial to the marked 10ml line with your water sample to be tested.

5. Place the vial into the test chamber and push the ↵ key. Be sure the vial is fully seated in the test chamber.
6. *Without removing the vial from the test chamber*, remove one **eXact™ Strip Oz** and dip into the vial for **20 seconds** with a gentle back-and-forth motion.

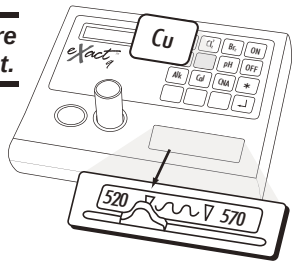
7. Remove the strip and discard.
8. Push the ↵ key and read the LCD display.

9. Record your results.

Test Procedures

Copper

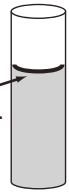
For best results please read the entire procedure before performing the test.



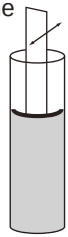
• For Copper use a wavelength of 520nm •

1. Press the ON key to start the unit. By default the instrument starts with the last test program that was used.
2. Push the Cu key to select Copper.
3. Push the ↵ key to activate the test program. The following text will be displayed on the LCD:

4. Fill one plastic vial to the marked 10ml line with your water sample to be tested.



5. Place the vial into the test chamber and push the ↵ key. Be sure the vial is fully seated in the test chamber.
6. *Without removing the vial from the test chamber*, remove one **eXact™ Strip Cu** and dip into the vial for **20 seconds** with a gentle back-and-forth motion.

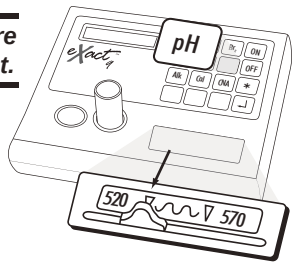


7. Remove the strip and discard.
8. Push the ↵ key and read the LCD display.

9. Record your results.

pH

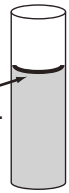
For best results please read the entire procedure before performing the test.



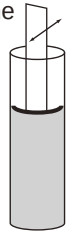
• For pH use a wavelength of 520nm •

1. Press the ON key to start the unit. By default the instrument starts with the last test program that was used.
2. Push the pH key to select pH.
3. Push the ↵ key to activate the test program. The following text will be displayed on the LCD:

4. Fill one plastic vial to the marked 10ml line with your water sample to be tested.



5. Place the vial into the test chamber and push the ↵ key. Be sure the vial is fully seated in the test chamber.
6. *Without removing the vial from the test chamber*, remove one **eXact™ Strip pH** and dip into the vial for **20 seconds** with a gentle back-and-forth motion.



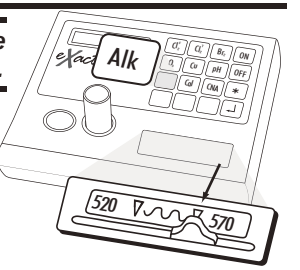
7. Remove the strip, discard, and **wait 20 seconds**.
8. Push the ↵ key and read the LCD display.

9. Record your results.

Test Procedures

Alkalinity

For best results please read the entire procedure before performing the test.



• For Total Alkalinity use a wavelength of 570nm •

1. Press the ON key to start the unit. By default the instrument starts with the last test program that was used.
2. Push the Alk key to select Total Alkalinity.
3. Push the ↵ key to activate the test program. The following text will be displayed on the LCD:

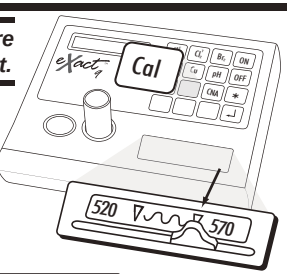
4. Fill one plastic vial to the marked 10ml line with your water sample to be tested.
5. Place the vial into the test chamber and push the ↵ key. Be sure the vial is fully seated in the test chamber.
6. *Without removing the vial from the test chamber*, remove one **eXact™ Strip AL** and dip into the vial for **20 seconds** with a gentle back-and-forth motion.

7. Remove the strip and discard.
8. Push the ↵ key and read the LCD display.

9. Record your results.

Calcium Hardness

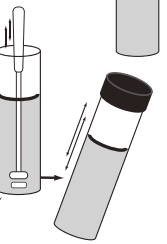
For best results please read the entire procedure before performing the test.



• For Calcium Hardness use a wavelength of 570nm •

1. Press the ON key to start the unit. By default the instrument starts with the last test program that was used.
2. Push the Cal key to select Calcium Hardness.
3. Push the ↵ key to activate the test program. The following text will be displayed on the LCD:

4. Fill one plastic vial to the marked 10ml line with your water sample to be tested.
5. Place the vial into the test chamber and push the ↵ key. Be sure the vial is fully seated in the test chamber.
6. Remove the vial and add 1 Calcicol **No. 1** tablet.
7. Using the Tablet Crushing Rod, press on the tablet several times to break it up into smaller pieces.

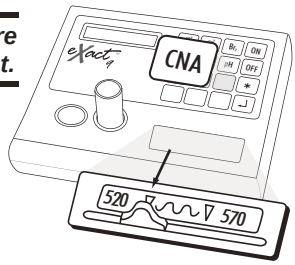


8. Cap the vial and shake until the tablet pieces are fully dissolved.
9. Remove the cap and add 1 Calcicol **No. 2** tablet.
10. Using the Tablet Crushing Rod, press on the tablet several times to break it up into smaller pieces.
11. Cap the vial, shake until the tablet pieces are fully dissolved, **wait 2 minutes** and re-insert the vial into the test chamber.
12. Push the ↵ key and read the LCD display.

13. Record your results.

Cyanuric Acid

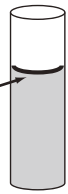
For best results please read the entire procedure before performing the test.



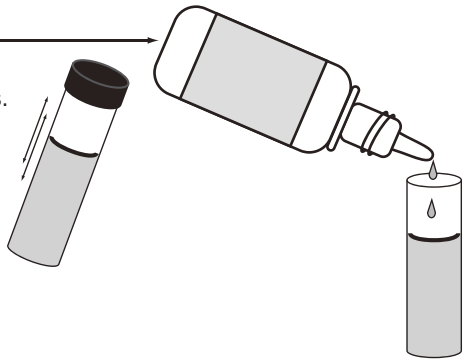
• For Cyanuric Acid use a wavelength of 520nm •

1. Press the ON key to start the unit. By default the instrument starts with the last test program that was used.
2. Push the CNA key to select Cyanuric Acid.
3. Push the ↵ key to activate the test program. The following text will be displayed on the LCD:

4. Fill one plastic vial to the marked line with your water sample to be tested.



5. Place the vial into the test chamber and push the ↵ key. Be sure the vial is fully seated in the test chamber.
6. Remove the vial from the test chamber.
7. Shake the bottle of **eXact™ Reagent CY** well before use.
8. Uncap the **eXact™ Reagent CY** bottle and add **5 drops** of reagent to the vial.



9. Cap the vial and shake for **20 seconds**.
10. Wait 10 seconds and place the vial back into the test chamber and cover with the light shield.
11. Push the ↵ key and read the LCD display.

12. Record your results.

Getting the Best Results

Success in obtaining accurate and consistent test results will depend on the care in which test procedures are carried out. Always follow the test procedures carefully and observe the stated dip / wait / test times.

Make sure that all vials are clean and dry before beginning each test, with the exception of the Total Chlorine procedure. It is a good idea to thoroughly rinse and dry each vial after use. If a vial becomes stained, rinse using a mixture of water and weak detergent, such as dish washing soap, and scrub with the included cleaning brush.

Given the nature of the test procedures, scratches and discoloration / staining, to a limited degree, will not affect the test results. Since the vial is placed in the unit and not removed until the test procedure is completed, with exception of the Calcium Hardness and Cyanuric Acid tests, minor scratches and discoloration will be factored into the blanking step and compensated for in the results. Vials that are heavily scratched and / or discolored should be replaced.

Care and Maintenance

The exact™ 9 is designed to give long and trouble-free operation. Care should be taken to avoid test solutions being spilled over the instrument, and to prevent excess amounts of moisture entering the instrument under outdoor conditions. Spills or moisture should be wiped off immediately with a dry cloth. Under no circumstances should solvents or abrasive materials be used to clean the instrument. Care should also be taken to keep the test chamber clean with particular emphasis on the glass covering the lamp and photocell openings. Any build-up of dirt or deposits may interrupt light transmission and affect readings. Wipe the inside of the test chamber periodically with a damp, lint-free cloth and then dry.

Error Messages (coded 1 - 10):

The unit will display an error message in the unlikely event of a malfunction. These error messages are mainly designed to assist service staff in diagnosing instrument faults. In the event of an error message, contact Palintest Technical Service or the distributor who supplied you with the instrument.

Errors 1, 2, 3, 4, 5, and 6 are internal self-monitoring checks. With the first occurance, replace the old batteries with a **FULL SET** of **NEW** batteries. If the error message still appears, it indicates a potential electronic fault with the instrument.

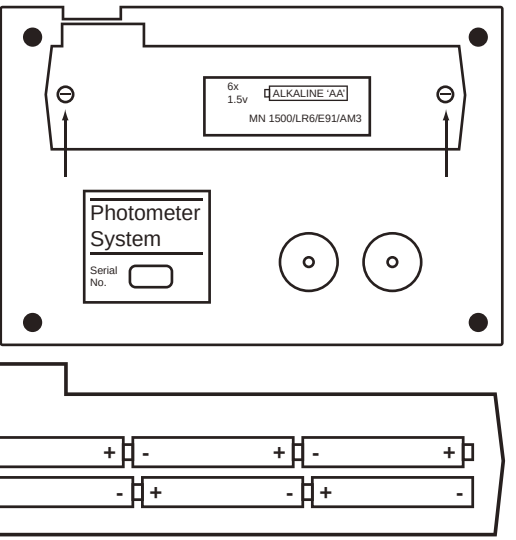
Error 7 is caused by bright light entering the test chamber. If this error occurs, place the light blocking cap over the test chamber when zeroing and performing the test.

Errors 8, 9, and 10 relate to zeroing the instrument. The first time one of these error messages appears, the user should check to make sure that the test procedure is being correctly followed. Additionally, check to make sure that the sample being evaluated is not too cloudy or discolored. If these steps do not correct the error, there may be a fault with the optics of the instrument.

Replacing the Batteries:

To replace batteries, follow these steps:

1. Turn the unit over and remove the 2 screws as illustrated.
2. Remove the battery compartment cover.
3. Remove and discard the old batteries.
4. Install a new set of batteries (6 x AA).
5. Replace the battery compartment cover and screws. Be careful not to overtighten the screws as this may crack the battery compartment cover.



Service Requirements:

The unit is equipped with a long-life bulb and contains no user-servicable components. If the instrument requires maintenance or repair, please contact Palintest Technical Services, or the distributor who supplied you with the instrument, to arrange for maintenance / repair.

Care and Maintenance Continued

To ensure accurate results, this unit, as with all colorimeters, will need to have routine maintenance and calibration recertification performed periodically. Every 2000 tests, the unit will notify you that routine maintenance is required. The LCD will display the following message: 'SERVICE DUE NOW, RETURN TO VENDOR'. This message will be displayed the next 3 times the unit is switched on. To arrange for maintenance, contact Palintest Technical Services or the distributor who supplied you with the instrument. Standard servicing includes cleaning of the optical assembly, replacement of any worn parts and checking / recalibrating the instrument.

Warranty:
The eXact™ 9 unit is guaranteed for a period of 1 year (12 months) from the date of purchase. This warranty covers manufacturer's defects and excludes accidental damage, or damage caused by unauthorized repair or misuse. Should repair be necessary, contact Palintest Technical Services. Please have your serial number, located on the back of the unit, available.

How to Order Replacement Parts

US Customers:

By Telephone:
8:00am - 4:30pm EST
Monday through Friday
1-800-861-9712

By Fax:
1-803-329-9743

By Mail:
Industrial Test Systems, Inc.
1875 Langston Street
Rock Hill, SC 29730 USA

By Internet:
www.SENSAFE.com

By eMail:
ITS@CETLINK.NET

International Customers:

By Telephone:
8:00am - 4:30pm EST
Monday through Friday
001-803-329-9712, **ext. 220**

By Fax:
1-803-329-9743

By Mail:
Industrial Test Systems, Inc.
1875 Langston Street
Rock Hill, SC 29730 USA

By Internet:
www.SENSAFE.com

By eMail:
PABLO@CETLINK.NET

For Technical Support

By Telephone:
8:00am - 4:30pm EST
Monday through Friday
1-803-329-0162, **ext. 210**

By eMail:
research@cetlink.net

By Fax:
1-803-329-9743

By Mail:
Industrial Test Systems, Inc.
1875 Langston Street
Rock Hill, SC 29730 USA

For Instrument Service

By Telephone:
8:00am - 5:00pm EST
Monday through Friday
1-859-341 7423

By eMail:
palintest@palintest.com

By Fax:
1-859-341 2106

By Mail:
Palintest USA
21 Kenton Lands Road
Erlanger, KY 41018 USA