

# eXact® Micro 8

## Advanced Photometer System Instruction Manual



### IDEAL FOR DRINKING WATER, POOLS AND SPAS, ENVIRONMENTAL, & EDUCATIONAL TESTING

U.S. Patent No. 7,333,194, South African Patent No. 2007/0628 and international patent applications including International Patent Appln. No. PCT/US2005/033985; and Eur. Pat. App. 1,725,864



**Micro 8 is  
Manufactured  
and tested in  
an ISO 9001  
Facility**

**The eXact® Micro 8 Advanced  
Photometer System has been  
designed for use with the eXact® Strip  
Micro reagent delivery system.**

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(NOTE: Other tests are read as %Transmission and require the use of a conversion table that is available for download from our website [www.sensafe.com](http://www.sensafe.com))

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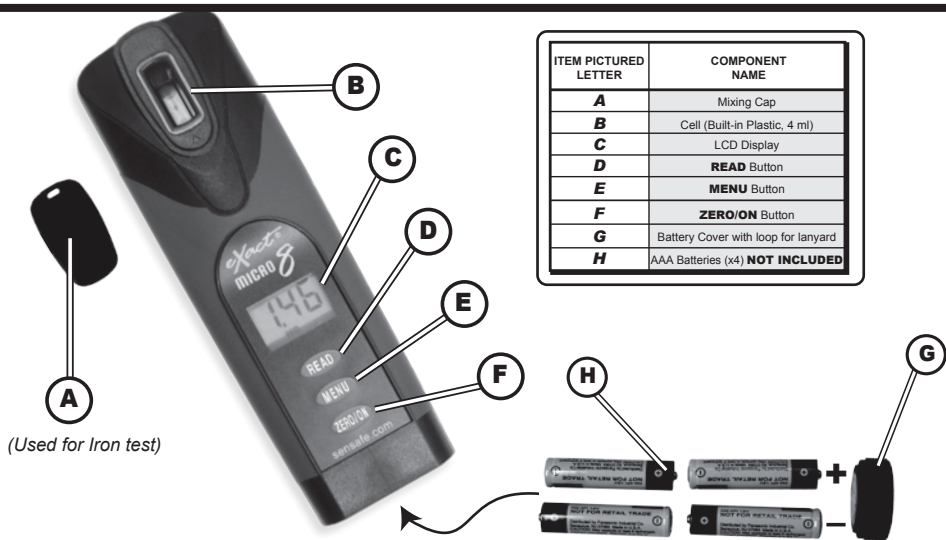
Visit us online at [sensafe.com/micro8](http://sensafe.com/micro8) for up-to-date product information & NEW tests available.

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# eXact® Micro 8 Photometer



| ITEM PICTURED LETTER | COMPONENT NAME                         |
|----------------------|----------------------------------------|
| <b>A</b>             | Mixing Cap                             |
| <b>B</b>             | Cell (Built-in Plastic, 4 ml)          |
| <b>C</b>             | LCD Display                            |
| <b>D</b>             | <b>READ</b> Button                     |
| <b>E</b>             | <b>MENU</b> Button                     |
| <b>F</b>             | <b>ZERO/ON</b> Button                  |
| <b>G</b>             | Battery Cover with loop for lanyard    |
| <b>H</b>             | AAA Batteries (x4) <b>NOT INCLUDED</b> |

## eXact® Micro 8 Meter Specifications

|                                   |                                                             |
|-----------------------------------|-------------------------------------------------------------|
| <b>Measurement Method:</b>        | Photometric                                                 |
| <b>Light Source:</b>              | Light Emitting Diode (LED)                                  |
| <b>Wavelength:</b>                | 638 nm                                                      |
| <b>Transmission Range:</b>        | 100 - 0.00 %T                                               |
| <b>Photometric Precision:</b>     | +/- 0.1/0.01 %T                                             |
| <b>Automatic Range Selection:</b> | See Specifications below                                    |
| <b>Display:</b>                   | 3-digit customized liquid crystal display with annunciators |
| <b>CELL Pathlength:</b>           | 20mm                                                        |

|                                          |                                                                           |
|------------------------------------------|---------------------------------------------------------------------------|
| <b>Cell Chamber:</b>                     | Custom-molded, proprietary, PET plastic fused into chamber, non-removable |
| <b>Sample Volume:</b>                    | 4 ml (0.13 oz)                                                            |
| <b>Operating Temperature Range:</b>      | 0 - 50°C (32° - 122°F)                                                    |
| <b>Power Supply:</b>                     | (4) AAA alkaline batteries <b>Not Included</b>                            |
| <b>Battery Life:</b>                     | >2000 tests with alkaline batteries                                       |
| <b>Electromagnetic Compliance: (EMC)</b> | Emitted Interference - EN 61326<br>Immunity to Interference - EN 61326    |
| <b>Waterproof Rating:</b>                | Exceeds IP67                                                              |
| <b>Weight:</b>                           | Instrument: 140 g (5 oz)                                                  |
| <b>Dimensions:</b>                       | Instrument: 5 (W) x 3.5 (D) x 16.5 (H) cm;<br>(2 x 1.4 x 6.375 in)        |

## eXact® Micro 8 is a “Green” Alternative

eXact® Micro 8 has been designed to offer the user a more “Green” and cost-effective alternative to testing. Instead of using a 10ml water sample, eXact® Micro 8 uses a 4ml water sample, which uses up to 60% less chemical per test. The resolution and accuracy of the meter is maintained by designing the photo cell with a 20mm pathlength.

### eXact® Micro 8 Specifications

| Menu       | Tests for                                                | Range          | Resolution           | Expected Meter Accuracy (±%) <sup>2</sup> |
|------------|----------------------------------------------------------|----------------|----------------------|-------------------------------------------|
| <b>CN1</b> | Cyanide                                                  | 0 - 1.9 ppm    | 0.01                 | 4                                         |
| <b>FE2</b> | Iron, Total                                              | 0 - 7.5 ppm    | 0.01 (0.01-2.49 ppm) | 3                                         |
|            |                                                          |                | 0.1 (2.5-7.5 ppm)    | 5                                         |
| <b>NH3</b> | Ammonia                                                  | 0 - 2 ppm      | 0.01                 | 2                                         |
| <b>PO4</b> | Phosphate                                                | 0 - 4 ppm      | 0.01 (0.01-3.00 ppm) | 1                                         |
|            |                                                          |                | 0.1 (3.1-4 ppm)      | 2                                         |
| <b>PH5</b> | BT-pH                                                    | 5 - 10 pH      | 0.1                  | 0.2 pH (0.5 pH above pH 7.8)              |
| <b>SS6</b> | Sulfide                                                  | 0.01 - 1.1 ppm | 0.01                 | 5                                         |
| <b>TR7</b> | Transmission <sup>1</sup><br>(used for other parameters) | 99.9 - 0.01 %T | 0.1 (99.9-10.0 %T)   | 0.1                                       |
|            |                                                          |                | 0.01 (9.99-0.01 %T)  | 0.01                                      |

<sup>1</sup> Measurement requires a conversion chart for value.

<sup>2</sup> For example: If the sample has 1 ppm of Iron, the meter may read 0.97 ppm or 1.03 ppm.

## About Your eXact® Micro 8 Instrument

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To save power, the meter is designed to turn off after 3 minutes (timed from the last button pressed). Should the meter turn off, the last stored zero in the meter will remain valid when the meter is turned on again. The eXact® Micro 8 Photometer is controlled by three buttons:

1. **ZERO/ON**: When first pressed, this button turns the meter on. When the meter is on and this button is pressed, it zeroes the sample in the cell. Once the meter is zeroed, this zero value applies to all menu parameters and is stored and retained even when meter turns off. It is recommended that each new water sample analyzed is zeroed before testing, to maximize accuracy.
2. **MENU**: With each press, when the meter is on, the MENU button advances through the tests in the following sequence: CN1, FE2, NH3, PO4, PH5, SS6, TR7. Each test menu can store up to 20 results. To **retrieve the stored results**, go to the desired test using the MENU key. When the desired test is displayed, release button and allow meter to display the last test result in that MENU. Then, **press and hold down the MENU key**. Continue holding down the MENU key to scroll the stored results for that test, starting with the most recent result. The meter will retrieve from stored memory and display the last 20 readings in sequence beginning with -20, which is the latest result, followed by -19, which is the 2<sup>nd</sup> latest result ... finally -01, which is the oldest result retained. Only the last 20 readings are stored in each menu. This meter is able to store 140 results in memory (20 in each menu).
3. **READ**: When pressed once, this button starts a **20 or 30 SECOND** countdown timer depending on the parameter being tested. If READ is pressed a second time during the countdown, the meter exits the current timing and performs the next function.

If the parameter being measured is below or above the detection range, the display will show "**LO**" (Under Range) or "**HI**" (Over Range), respectively. This feature is menu specific.

## About The Accuracy/Calibration Of The Micro 8 Photometer System

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The eXact® Micro 8 Advanced Photometric System has been factory calibrated for your convenience. Customer calibration for your own special application can be performed in the Transmission Menu. You can expect the fixed calibrations or algorithms in the meter to be valid for the life of the meter because of the quality, Long-Life LED, the photo cell, and the software as written into the meter. A blue dye calibration solution is available for verification of meter performance.

When there is a question about the quality of a ReagentStrip™, your test method, or the photometer you are using, then it is recommended to test the SYSTEM (reagent, you, and photometer) by using the appropriate READY SNAP™ solution.

Follow the procedure for the test you are running. If you get the acceptable result using the READY SNAP™ solution, then you can be confident that the reagent, you, and the photometer are working as a SYSTEM correctly.



**1**

## **REMOVE STRIP**

Remove one (1) **eXact® Strip Micro CN-1, Part No. 486812-A** from the bottle before beginning the test. Set the strip in a dry, convenient place and recap the bottle immediately. Next, remove one (1) **eXact® Strip Micro CN-2, Part No. 486812-B** from the bottle before beginning the test. Set this strip in a dry, convenient place separate from the CN-1 strip. Recap the bottle immediately.



**2**

## **TURN METER ON**

Press the **ZERO/ON** button to power the meter on; the display will show all annunciators, then the current MENU selection, followed by the last reading.



**3**

## **SELECT TEST: CN1**

Press and re-press the **MENU** button until the display shows the parameter **CN1**.



**4**

## **FILL METER WITH SAMPLE**

Rinse the **CELL** at least 3 times with the water sample you will be testing - rinsing minimizes the potential for cross-contamination from a previous test. Finally, fill cell to capacity (4ml) with the water sample. **NOTE:** The calibration of the meter is based on a water temperature between 18°C and 25°C. If temperature is below 18°C, your final Cyanide value may read low.



**5**

## **ZERO METER**

Press the **ZERO/ON** button. The cursor will move across the display followed by **0.00 PPM**. Sample is ready for testing.



**6**

## **DIP STRIP AND PRESS "READ"**

Dip the **eXact® Strip Micro CN-1, Part No. 486812-A** into the **CELL** and immediately press **READ**. This starts the **30 SECOND** countdown timer. During this time move the strip in a gentle back and forth motion. Because the strip is 8mm wide, the strip will need to be angled in order to fit in the cell. Be sure test pad is fully submerged. **Remove and discard the strip after "1" on the display disappears.** The cursor will move across the display, informing you to get ready with the CN-2 strip. When the **30 SECOND** countdown starts, dip immediately the **eXact® Strip Micro CN-2, Part No. 486812-B** into the **CELL**. During this time, with the strip angled slightly, move the strip in a gentle back and forth motion. **Remove and discard the strip after "1" on the display disappears.** The meter will automatically start to count up to 600 seconds. At 600 seconds, the cursor will move across the display while the meter prepares to measure the sample. Record result displayed (this result is automatically stored in CN1).



**FE**

## Total Iron, TPTZ (Fe<sup>2+</sup>/Fe<sup>3+</sup>) Test Procedure

**MENU**

(Total Iron Kit 486650 - Reducer and Strips)

**FE2****1**

### **TURN METER ON**

Press the **ZERO/ON** button to power the meter on; the display will show all annunciators, then the current MENU selection, followed by the last reading.

**2**

### **SELECT TEST: FE2**

Press and re-press the **MENU** button until the display shows the parameter **FE2**.

**3**

### **FILL METER WITH SAMPLE - (See Accuracy Tip 16 on Page 9)**

Clean the cell with White Distilled Vinegar or 0.1N HCL or Muriatic Acid before starting this test. Rinse the **CELL** at least 3 times with the water sample you will be testing - rinsing minimizes the potential for cross-contamination from a previous test. Fill cell to capacity (4ml) with the water sample.

**4**

### **ADD REAGENT, CAP, AND MIX**

Tilt meter to discard about 0.2mL water in order to leave room for powder reagent. Add the contents of one **eXact® Reagent EZ Open REDUCER, Part No. 486601** to the **CELL** and cap meter cell with mixing cap. Press **READ** to start the **20 SECOND** countdown timer, place thumb over cap to keep cap securely in place, and mix the sample by turning the meter upside-down repetitively. **When time displays 1**, hold the meter upright and the cursor will flash and the meter will begin to count up to 40 seconds. After the 40 seconds, a result will be displayed (ignore this result).

**5**

### **ZERO METER**

Press the **ZERO/ON** button. The cursor will move across the display, followed by **0.00 PPM**. Sample is ready for testing.

**6**

### **DIP STRIP AND PRESS "READ"**

Dip the **eXact® Strip Micro FE (TPTZ), Part No. 486631** into the **CELL** and immediately press **READ**. This starts the **20 SECOND** countdown timer. During this time, move the strip in a gentle back and forth motion. **Remove and discard the strip after "1" on the display disappears**. The meter will automatically count up for 40 seconds. The cursor will move across the display, informing you that it is about to measure the sample. Record result displayed (this result is automatically stored in FE2).

**NH<sub>3</sub>**

## Ammonia (NH<sub>3</sub>) Test Procedure

**MENU**

(Ammonia Kit 486654 - Reagent and Strips)

**NH3****1**

### **TURN METER ON**

Press the **ZERO/ON** button to power the meter on; the display will show all annunciators, then the current MENU selection, followed by the last reading.

**2**

### **SELECT TEST: NH3**

Press and re-press the **MENU** button until the display shows the parameter **NH3**.

**3**

### **FILL METER WITH SAMPLE**

Rinse the **CELL** at least 3 times with the water sample you will be testing - rinsing minimizes the potential for cross-contamination from a previous test. Finally, fill cell to capacity (4ml) with the water sample. Tilt meter to discard about 0.2mL water in order to leave room for liquid reagent. **NOTE:** The calibration of the meter is based on a water temperature between 14°C and 28°C. If temperature is below 14°C, your final Ammonia value may read low.

**4**

### **ADD REAGENT**

Add 3 drops of **eXact® Reagent NH<sub>3</sub>, Part No. 486654-B** to the **CELL**. **NOTE:** For Salt Water Analysis, add 10 drops.

**5**

### **ZERO METER**

Press the **ZERO/ON** button. The cursor will move across the display, followed by **0.00 PPM**. Sample is ready for testing.

**6**

### **DIP STRIP - (read carefully and follow procedure closely)**

Dip the **eXact® Strip Micro NH<sub>3</sub>, Part No. 486654-A** into the **CELL** and immediately press **READ**. This starts the **20 SECOND** countdown timer. During this time move the strip in a gentle back and forth motion. **Remove and discard the strip after "1" on the display disappears**. The meter will automatically start to count up for 500 seconds. After the 500 seconds, the cursor will move across the display while the meter prepares to measure the sample. Record result displayed (this result is automatically stored in NH3).

**MENU****PO4**

## Phosphate (PO<sub>4</sub>) Test Procedure

(Phosphate Kit 486814 - Strips only)

**PO<sub>4</sub>**

### 1 **TURN METER ON**

Press the **ZERO/ON** button to power the meter on; the display will show all annunciators, then the current MENU selection, followed by the last reading.

### 2 **SELECT TEST: PO4**

Press and re-press the **MENU** button until the display shows the parameter PO4.

### 3 **FILL METER WITH SAMPLE**

Clean the cell with White Distilled Vinegar, 0.1N HCl or Muriatic Acid before starting this test. Rinse the **CELL** at least 3 times with the water sample you will be testing - rinsing minimizes the potential for cross-contamination from a previous test. Finally, fill cell to capacity (4ml) with the water sample. NOTE: The calibration of the meter is based on a water temperature between 15°C and 31°C. If temperature is below 15°C, your final Phosphate value may read low. This test can also be used for Salt Water Testing.

### 4 **ZERO METER**

Press the **ZERO/ON** button. The cursor will move across the display, followed by **0.00 PPM**. Sample is ready for testing.

### 5 **DIP STRIP - (read carefully and follow procedure closely)**

Dip the **eXact® Strip Micro PO<sub>4</sub>, Part No. 486814** into the **CELL** and immediately press **READ**. This starts the **20 SECOND** countdown timer. During this time move the strip in a gentle back and forth motion. **Remove and discard the strip after "1" on the display disappears.** The meter will automatically start to count down for 120 seconds. After the 120 seconds, the cursor will move across the display while the meter prepares to measure the sample. Record result displayed (this result is automatically stored in PO4).

**MENU****PH5**

## BT-pH Test Procedure

(BT-pH Kit 486652 - Strips only)

**bt**

**This test procedure is for use with fresh water samples  
(Salt/Chloride level, as NaCl, is less than 4,000 ppm)**

### 1 **TURN METER ON**

Press the **ZERO/ON** button to power the meter on; the display will show all annunciators, then the current MENU selection, followed by the last reading.

### 2 **SELECT TEST: PH5**

Press and re-press the **MENU** button until the display shows the parameter PH5.

### 3 **FILL METER WITH SAMPLE**

Rinse the **CELL** at least 3 times with the water sample you will be testing - rinsing minimizes the potential for cross-contamination from a previous test. Finally, fill cell to capacity (4ml) with the water sample.

### 4 **ZERO METER**

Press the **ZERO/ON** button. The cursor will move across the display followed by **0.00**. Sample is ready for testing.

### 5 **DIP STRIP AND PRESS "READ"**

Dip the **eXact® Strip Micro bt, Part No. 486652** into the **CELL** and immediately press **READ**. This starts the **20 SECOND** countdown timer. During this time move the strip in a gentle back and forth motion. **Remove and discard the strip after "1" on the display disappears.** The cursor will move across the display while the meter prepares to measure the sample. Record result displayed (this result is automatically stored in PH5).

**1 TURN METER ON**

Press the **ZERO/ON** button to power the meter on; the display will show all annunciators, then the current MENU selection, followed by the last reading.

**2 SELECT TEST: SS6**

Press and re-press the **MENU** button until the display shows the parameter SS6.

**3 FILL METER WITH SAMPLE**

Rinse the **CELL** at least 3 times with the water sample you will be testing - rinsing minimizes the potential for cross-contamination from a previous test. Finally, fill cell to capacity (4ml) with the water sample. Tilt meter to discard about 0.2mL water in order to leave room for liquid reagent. NOTE: The calibration of the meter is based on a typical well water temperature of greater than 20°C (68°F) and uses a 20-second dip (see step 5).

**4 ZERO METER**

Add 4 drops of **eXact® Reagent S<sup>2-</sup>, Part No. 486818-A**. Press the **ZERO/ON** button. The cursor will move across the display, followed by **0.00 PPM**. Sample is ready for testing.

**5 DIP STRIP AND PRESS “READ”**

Dip the **eXact® Strip Micro S<sup>2-</sup>, Part No. 486818-B** into the **CELL** and immediately press **READ**. This starts the **30 SECOND** countdown timer. During this time move the strip in a gentle back and forth motion. If water temperature is below 20°C, **remove and discard the strip after “1” on the display disappears**. If water temperature is above 20°C, **remove and discard the strip after “10” on the display appears**. The meter will automatically, at time “0”, start to count up for 180 seconds. After the 180 seconds, the cursor will move across the display while the meter prepares to measure the sample. Record result displayed (this result is automatically stored in SS6). NOTE: Maximum detection is 1.1 ppm, however best accuracy at less than 20°C is for levels less than 0.70 ppm.

**1 REMOVE STRIP**

Remove one (1) **eXact® Strip Micro**, part number is dependent upon the test being run, from the bottle before beginning the test. Set the strip in a dry, convenient place and recap the bottle immediately.

**2 TURN METER ON**

Press the **ZERO/ON** button to power the meter on; the display will show all annunciators, then the current MENU selection, followed by the last reading.

**3 SELECT TEST: TR7**

Press and re-press the **MENU** button until the display shows the parameter **TR7**. Some of the tests listed on the chart on page 11 will require the TR7 MENU and a conversion chart available at [www.sensafe.com](http://www.sensafe.com).

**4 FILL METER WITH SAMPLE**

Rinse the **CELL** at least 3 times with the water sample you will be testing - rinsing minimizes the potential for cross-contamination from a previous test. Finally, fill cell to capacity (4ml) with the water sample.

**5 ZERO METER**

Press the **ZERO/ON** button. The cursor will move across the display, followed by **100 %T**. The sample is ready for testing.

**6 DIP STRIP AND PRESS “READ”**

Dip the **eXact® Strip Micro (or add Reagent)** into the **CELL** immediately press **READ**. This starts the **20 SECOND** countdown timer. During this time move the strip in a gentle back and forth motion. **Remove and discard the strip after “1” on the display disappears**. The cursor will move across the display while the meter prepares to measure the sample. Record result displayed (this result is automatically stored in TR7). After testing is completed, rinse cell immediately.



# Biguanide Test Procedure

(Biguanide Kit 486810 - Strips only)

## 1 TURN METER ON

Press the **ZERO/ON** button to power the meter on; the display will show all annunciators, then the current MENU selection, followed by the last reading.

## 2 SELECT TEST: TR7

Press and re-press the **MENU** button until the display shows the parameter TR7.

## 3 FILL METER WITH SAMPLE

Rinse the **CELL** at least 3 times with the water sample you will be testing - rinsing minimizes the potential for cross-contamination from a previous test. Finally, fill cell to capacity (4ml) with the water sample.

## 4 ZERO METER

Press the **ZERO/ON** button. The cursor will move across the display, followed by **100 %T**. Sample is ready for testing.

## 5 DIP STRIP AND PRESS "READ"

Dip the **eXact® Strip Micro Biguanide, Part No. 486810** into the **CELL** and immediately press **READ**. This starts the **20 SECOND** countdown timer. During this time move the strip in a gentle back and forth motion. **Remove and discard the strip after "1" on the display disappears**. The cursor will move across the display while the meter prepares to measure the sample. Record result displayed (this result is automatically stored in TR7).

## 6 USE TABLE

Find the "TR" result in the table below to determine the Biguanide concentration in ppm (parts per million). (Example: a "TR" result of 65.3 (use only the 65 for the chart) equals a Biguanide value of 19 ppm). Record result. After testing is completed, rinse cell immediately.

## Biguanide Table

Sulfate results require the table below. Follow **eXact® Micro 8 Biguanide Test Procedure** (above) using **eXact® Strip Micro Biguanide, Part No. 486810**.

**eXact® Strip Micro Biguanide, Part No. 486810 - for 4mL Samples**

| tr | 9    | 8    | 7    | 6    | 5    | 4    | 3    | 2    | 1    | 0    |
|----|------|------|------|------|------|------|------|------|------|------|
| 90 | <1   | <1   | <1   | <1   | <1   | <1   | <1   | <1   | <1   | <1   |
| 80 | 1    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 7    | 8    |
| 70 | 9    | 10   | 10   | 11   | 12   | 12   | 13   | 14   | 15   | 15   |
| 60 | 16   | 17   | 17   | 18   | 19   | 20   | 20   | 21   | 22   | 23   |
| 50 | 23   | 24   | 25   | 26   | 26   | 27   | 28   | 29   | 29   | 30   |
| 40 | 31   | 32   | 33   | 34   | 35   | 35   | 36   | 37   | 38   | 39   |
| 30 | 40   | 41   | 42   | 43   | 45   | 46   | 47   | 48   | 50   | 51   |
| 20 | 52   | 54   | 55   | 57   | 58   | 60   | 62   | 64   | 66   | 68   |
| 10 | 70   | 72   | 75   | 77   | 80   | 84   | 88   | 93   | 100  | >100 |
| 0  | >100 | >100 | >100 | >100 | >100 | >100 | >100 | >100 | >100 | >100 |

Rev. 111109-BT



## eXact® Micro 8 Tips For Best Accuracy

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1. Become familiar with the meter and the different tests by reading the instructions carefully.
2. Observe the dip time (*as required for the test*) for accurate results.
3. Be sure the **CELL** is filled to capacity (4ml), especially for tests like pH.
4. Rinse the **CELL** with clean water immediately after completing the test. (*Some test reagents will stain or coat the CELL*)
5. Just before testing, rinse the sample **CELL** with the sample water several times to get a representative sample. (*Use deionized or distilled water for rinsing if you have a limited sample*).
6. Store the meter and all test materials out of direct sunlight and away from chemical storage areas.
7. Minimize exposure of meter and test reagents to heat above 100°F (38°C).
8. Dry the outside of the meter when testing is complete or before storage of the meter.
9. Each eXact® Strip Micro is valid for **ONLY** one test. Discard strip after single use in regular trash that is inaccessible to children and pets.
10. Each bottle of eXact® Strip Micro contains the quantity of strips notated on the bottle. Due to the manufacturing process, you may find one or two strips that are noticeably smaller or larger in width than the normal strips in the bottle for the test. These should be discarded. Using these strips may give unreliable results.
11. Each conversion table supplied has a unique revision number located in the bottom right corner of the chart. It is recommended that you visit [www.sensafe.com](http://www.sensafe.com) at least every 6 months to check for any updated revisions for conversion chart or methodology.
12. Tests are calibrated at 75°F +/- 2°F (24°C +/- 1°C). If water sample is 60°F (15°C) or cooler, most tests may require additional time for full chemical development. At the end of the normal test procedure, press **READ** again and compare value after this countdown. If the new value is higher, then use the new value for your result. When possible, it is recommended that the water sample be warmed to room temperature before testing.
13. Normally the mixing cap is used for tests like Iron. A stirrer (such as a clean, plastic coffee stirrer) may also be used in place of the mixing cap. Use the stirrer with gentle, back and forth motion, during the 20-second countdown timing.
14. Our lab testing with the Micro 8 meter has shown that zeroing and measuring of the sample does not require any cell cover for accurate results, even in full sunlight.
15. Remove batteries when meter is not used for more than a month.
16. Clean cell with 0.1N HCl before filling the meter with the sample to be tested for Iron. This is especially important when testing low levels of Iron after running a Sulfide test, which uses an Iron reagent. It is recommended that Iron testing be done before Sulfide testing if possible.
17. Rinse the **CELL** with clean water immediately after completing the test. *A stained cell will need to be cleaned according to procedure as described in About the Built-In Cell/Cleaning Cell (page 10).*
18. Do not drop meter. This may cause meter to stop functioning or result in broken CELL or display. These kinds of meter failures are not covered by the warranty.

## About the eXact® Micro 8 TR7 MENU

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TR7: Different ions react with a specific indicator to form a color or a precipitate that proportionally indicates the concentration of the ion present by the transmission value found. A conversion chart is then used to determine the ion concentration using the transmission value. The advantage of using transmission measurement is that many different ions can be determined in one MENU, which expands the flexibility of this meter. Once you have determined the %T result for the test you ran, find this %T result in the conversion chart and read the concentration corresponding for this %T. The Micro 8 gives the %T values as 3 digits (example 99.2) but only the first two digits are used in the charts (round off your %T value to two digits). Tests that can be used with the Micro 8 in TR7 MENU are listed on page 11. Typically, common tests are supplied with the conversion chart in this booklet. For conversion charts and information about the tests not given in this booklet, visit our website. You can also use the TR7 MENU to develop your own custom conversion chart for unusual samples or uncommon tests.

## eXact® Micro 8 Meter Messages

The following are some common messages that may be displayed, including error messages. If an error message other than those listed below is displayed, please contact technical support in the USA at (803) 329-0162 (ext. 0).

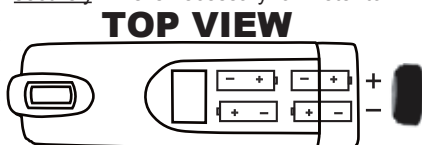
| LCD Message                                                                      | Description                                                                                                                        | Corrective Action                                                                                 |
|----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| HI                                                                               | In READ mode: test sample concentration is above the measurement range (test specific).                                            | Dilute and retest. Dilution Kit available (Part Number 487200) (Not valid for pH)                 |
| LO                                                                               | In READ mode: test sample concentration is below the measurement range (test specific).                                            | Sample value is below detection capability of meter.                                              |
| LO                                                                               | In ZERO mode: sample absorbance (due to a cloudy or colored sample or a dirty cell) is too high to zero, the meter will read "LO". | Dilute sample, filter sample, or clean cell. Meter will not function until valid ZERO is recorded |
|  | Low battery indication.                                                                                                            | Replace the batteries.                                                                            |

## About The Built-In Cell/Cleaning Cell

The built-in **CELL** is transparent plastic and, when filled to the top, contains 4ml. The sturdy **CELL** design will last for over 20,000 readings. Scratches on the **CELL** will not interfere or compromise the accuracy of the readings because of its fixed position. For best accuracy, rinse cell with clean water immediately after a test is completed. Do not use solvents, such as acetone, to clean the cell. When the **CELL** becomes stained or cloudy from repeated testing, or when the meter does not blank when you press the **ZERO/ON** button, the cell needs to be cleaned. Clean as follows: Fill cell with clean water and move the **Cell cleaning brush** up-and-down and back-and-forth along the walls of the cell. Afterwards, rinse the cell and the meter is ready for use again. Cleaning the cell regularly is especially recommended after you run a test that is using turbidity or precipitation chemistry for analysis (Calcium, Potassium, Cyanuric Acid, etc.).

## To Install/Replace "AAA" Batteries:

1. Unscrew the O-ring sealed battery cover counter-clockwise. Use proper sized pliers if necessary. Do not disturb the sealing O-ring.
2. Remove the used batteries.
3. Install 4 new AAA batteries following the diagram for correct polarity (see below).
4. Replace the battery cover. Be sure to tighten the cover securely. This is necessary for meter to be waterproof.
5. Dispose of the used batteries in accordance with your local regulations.
6. Press ZERO/ON button to confirm the meter turns on. The meter is now ready for operation.
7. Meter will not work if battery orientation is incorrect.
8. Meter will not work if battery contacts are bent due to a dropped meter. Confirmed by rattling in meter.



## eXact® Photometer 2-Year Limited Warranty

Registration of your eXact® photometer must be received within 30 days from date of purchase to activate the warranty. The eXact® photometer is warranted to be free from defects in materials and workmanship for a period of two (2) years from the date of purchase by the customer. ITS will repair or replace any part of the product which is deemed to be faulty or otherwise defective. The non-transferable warranty does not cover product damage caused by abuse (such as crushing a tablet in the cell), dropping meter, or improper use. If the meter is faulty or otherwise defective contact ITS by phone (+1-803-329-9712 Ext. 0) or email ([its@sensafe.com](mailto:its@sensafe.com)) to describe the problem and obtain a return authorization form before returning the photometer to ITS. Damage caused by improper packing of the photometer for return shipment to ITS will not be covered by the warranty. Customer is responsible for shipping charges to ITS. ITS pays postage when photometer is returned to customer. A maximum processing fee of \$75 will be charged for repair or replacement of non-registered photometers and damages not covered by this warranty. Registration for warranty is possible by phone (+1-803-329-9712 Ext. 0) or online at <http://www.sensafe.com/micro/warranty/> (Personal data is kept confidential)

# eXact® Strip Micro 8 Reagent Reorder Information

**eXact® Strip Micro (4mL) Reagent Specifications - For use with eXact® Micro 8, Part no. 486800**

| No. | PARAMETER                                 | PART NO. | # OF TESTS | DETECTION RANGE    | CHEMISTRY                      |
|-----|-------------------------------------------|----------|------------|--------------------|--------------------------------|
|     | eXact® Micro 8 (meter only)               | 486800   | N/A        | N/A                | N/A                            |
|     | Carrying case with foam                   | 486001   | N/A        | N/A                | N/A                            |
| 1   | Cyanide                                   | 486812   | 50         | 0.00 - 1.90 ppm    | Isonicotinic/Barbituric Acid   |
| 2   | Total Iron, TPTZ (Fe+2/Fe+3)              | 486650   | 50         | 0.00 - 7.5 ppm     | TPTZ + Reducer                 |
| 3   | Ammonia                                   | 486654   | 25         | 0.00 - 2.00 ppm    | Salicylate method              |
| 4   | Phosphate                                 | 486814   | 50         | 0.00 - 4.0 ppm     | Molybdate Method               |
| 5   | BT-pH                                     | 486652   | 100        | 5.0 - 10.0 pH      | Bromothymol blue + Thymol blue |
| 6   | Sulfide                                   | 486818   | 50         | 0.01 - 1.1 ppm     | DPD Reagent / FeCl3            |
| 7   | Alkalinity, Total*                        | 486816   | 50         | <b>Coming Soon</b> | Alizarin Red S + Citrate       |
| 8   | Aluminum*                                 | 486821   | 50         | 0 - 600 ppb        | Pyrocatechol Violet            |
| 9   | Biguanide*                                | 486810   | 50         | 1 - 100 ppm        | Bromophenol Blue               |
| 10  | Calcium Hardness (as CaCO <sub>3</sub> )* | 486629   | 50         | 20 - 900 ppm       | Oxalic Acid                    |
| 11  | Chloride (as NaCl)*                       | 481657   | 25         | 3 - 300 ppm        | Silver (ppt)                   |
| 12  | Cyanuric Acid*                            | 481652   | 130        | 0 - 80 ppm         | Melamine                       |
| 13  | CG-pH                                     | 486817   | 50         | 2.7 - 5.3 pH       | Bromocresol Green              |
| 14  | Fluoride                                  | 486643   | 25         | 0 - 1.5 ppm        | SPADNS                         |
| 15  | Sulfate (as SO <sub>4</sub> )*            | 486608   | 50         | 0 - 200 ppm        | Barium (ppt)                   |
| 16  | Turbidity*                                | None     | No Reagent | 3 - 580 NTU        | Turbidity                      |

\* Results utilize the Tr-7 (Transmission) meter function and require the use of a conversion table. See respective test procedures for more information and tables.

## PRICES & SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: Because most of our products are test strips or use reagents that have little or no hazard in the quantity sold, MSDS sheets are not supplied with the test. The exceptions are the Manganese (486606) test, which comes with 2 strips and one liquid reagent (PAN); Fluoride (486643) test, which is a liquid reagent (SPADNS), and Iron (481623) test, which is a powder reagent. Hydrazine (486649), Ammonia (486654), and Sulfide (486818) use a liquid and strip.

If your required procedure is not listed in this manual, please see the back page for our contact information.

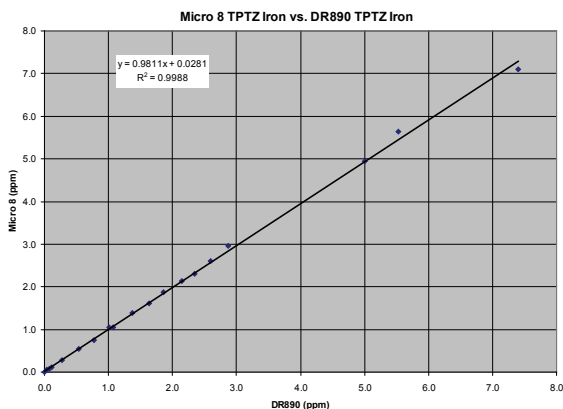
To ensure optimal performance, store your eXact® kit in a cool, dry place away from excess heat (below 100°F / 38°C), moisture, and oxidizers such as Chlorine and Bromine.

# eXact® Strip Micro FE TPTZ Accuracy

Total Iron results are compared using the **eXact® Strip Micro FE TPTZ** with the **eXact® Reagent EZ OPEN REDUCER** in the eXact® Micro 8 Meter using Menu FE2 versus Hach® DR890 Colorimeter in Program 39 using Hach® TPTZ Iron powder pillows (cat 26087-99).

| DR890 | Micro 8 |
|-------|---------|
| 0.00  | 0.00    |
| 0.04  | 0.05    |
| 0.07  | 0.08    |
| 0.12  | 0.12    |
| 0.28  | 0.29    |
| 0.54  | 0.55    |
| 0.77  | 0.75    |
| 1.01  | 1.04    |
| 1.07  | 1.05    |
| 1.37  | 1.39    |
| 1.63  | 1.61    |
| 1.86* | 1.88    |
| 2.15* | 2.13    |
| 2.35* | 2.30    |
| 2.60* | 2.61    |
| 2.88* | 2.96    |
| 5.00* | 4.95    |
| 5.53* | 5.63    |
| 7.40* | 7.10    |

\*Sample diluted appropriately to read within the limits of the Hach® DR890, which is 1.80 ppm.



## The eXact® Micro 8 Kit

### (486800-K) Kit Includes:

- 1 eXact® Micro 8 Meter (486800)
- eXact® Strip Micro Total Iron (TPTZ) Kit (486650)
- eXact® Strip Micro Phosphate (486814)
- eXact® Strip Micro Ammonia (486654)
- eXact® Strip Micro Sulfide (486818)
- eXact® Strip Micro BT-pH (486652)
- 1 Mixing Cap
- 1 Cell Cleaning Brush
- Plastic Carrying Case

## Contact Information

### For US Inquiries and Re-Orders: Industrial Test Systems, Inc.

1875 Langston Street,  
Rock Hill, SC 29730 USA  
**Phone:** 1-800-861-9712 - *INSIDE THE U.S.*  
1-803-329-9712 - *OUTSIDE THE U.S.*

**Fax:** 1-803-329-9743

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### For European & Middle East Inquiries and Re-Orders: ITS Europe, LTD

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