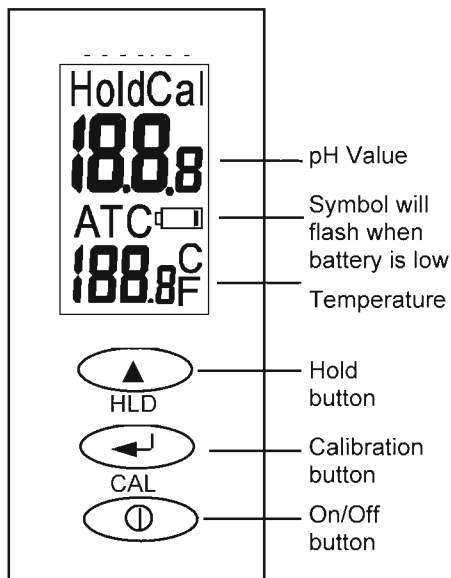


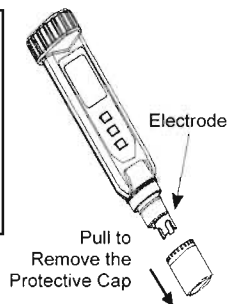
INTRODUCTION

These simple and easy to use waterproof pH Pens feature Hold and Automatic Temperature Control (ATC), and measures from 0~14 pH.

DISPLAY / FACEPLATE



FIRST USE: If the unit fails to turn on, check that the batteries are working and properly installed.



CALIBRATION

- Calibrate routinely before use, any-time the readings seem erratic, and whenever the batteries are replaced.
- Remove the protective cap.
- Clean the electrode with de-ionized/distilled water. Note: Crystals may form in the cap and these can be soaked or rinsed away. Do not touch or rub the glass bulb.
- Before first use or after extended storage, soak the electrode in distilled water for 10~30 minutes.
- Press \blacktriangle >1 sec to turn on the unit.
- For 1-point calibration, dip/stir the electrode into pH 7 buffer solution and press the \leftarrow button. If the probe is damaged or cannot detect the buffer, the unit automatically exits calibration mode after 10 seconds.
- During calibration, "CAL" flashes on the display.
- Then, "CAL", the pH value, "ATC" and the temperature are shown.
- "SA" is displayed as the calibration point is saved.
- "En" (850051) or "End" (850052) displays when the calibration ends.
- For 2 or 3 point calibration, start with pH 7, then repeat the above steps for pH 4 and/or pH 10.
- For highest accuracy, calibrate at the sample temperature.
- Repeat the above procedures until readings stabilize.
- NOTE: If the buffer value is not standard (for example 4.2), press \blacktriangle to adjust the displayed value. "SA" (save) is displayed, followed by "En" (850051) or End" (850052).



MEASUREMENT

- Calibrate the pen as needed.
- Remove the protective cap and clean the electrode with de-ionized/distilled water. Do not touch the glass bulb.
- Press \blacktriangle >1 sec to turn on the unit.
- Dip/stir the electrode into the sample.
- The pH value and temperature are displayed.
- "- . ." is displayed when the pH sample is out of range.
- "H" or "L" is displayed when the temperature is out of range.
- To switch between °F and °C, start with the unit off, then simultaneously press \leftarrow and \blacktriangle .
- Release both buttons when "C" or "F" is displayed.
- Press \blacktriangle to select the preferred unit, then press \leftarrow to save.
- "SA" (save) is displayed and the unit returns to measurement mode.
- During measurement, press \blacktriangle to freeze the reading on the LCD. "Hold" is displayed. Press \blacktriangle again to return to normal measurement.
- The pH Pen automatically shuts off after 20 minutes of inactivity. To disable this feature, start with the unit off, then simultaneously press the \blacktriangle and \blacktriangle buttons. Release both buttons when "n" is displayed. The unit returns to measurement mode.
- After use, turn off the unit and rinse the electrode.
- Protect the electrode's lifespan by adding a few drops of KCL (potassium chloride) solution into the protective cap before storage.
- Always keep the protective cap on when the unit is not in use.

BATTERY REPLACEMENT

- Replace all 4 LR44 batteries when the low battery icon is flashing, or when troubleshooting (below) fails.
- Unscrew the cover and install the batteries with the flat positive (+) side of the batteries facing the spring.
- Do not remove the O-ring.
- Remove the batteries when the unit is not in use for an extended period.

TROUBLESHOOTING

- If there is no display, or you have erratic readings after having soaked the electrode in distilled/de-ionized water for at least 1 hour prior to calibration, check the continuity of the batteries by removing them for 1 minute, then reinsert.
- Slow Response: Soak the electrode in tap water for 10-15 minutes, then rinse with distilled/de-ionized water.
- "- - ." displays when the pH sample is too acidic or too alkaline.
- "H" or "L" displays when the temperature is too hot (H) or too cold (L).
- No Display: Be sure to press Ⓢ for at least one second. If the problem persists, see Battery Replacement (above).
- If your readings are still erratic after calibration, soak the electrode for 10 to 30 minutes in distilled water.
- Note: It is normal for the pH value to fluctuate quickly when the electrode is exposed to air and not immersed.

SPECIFICATIONS

pH Range	0~14 pH		
pH Resolution	850051	0.1 pH	0.5 °F/°C
	850052	0.01 pH	0.1°F/°C
Accuracy	850051	±0.2 pH	±1°C
	850052	±0.05 pH	±0.5°C
Adjustable Calibration Points	pH 4	3.5~4.5	
	pH 7	6.5~7.5	
	pH 10	9.5~10.5	
Temp. Range	0~60°C		
Operating Environ.	31~122°F	<80 RH	
	0~50°C		
Weight	2.4 oz, 68g with battery		
Dimension	6½" x 1½" x 1" 165 x 35 x 32 mm		

WARRANTY: Sper Scientific warrants this product against defects in materials and workmanship for a period of 1 year from the date of purchase, and agrees to repair or replace any defective unit without charge. If your model has since been discontinued, an equivalent Sper Scientific product will be substituted if available. This warranty does not cover probes, batteries, or damage resulting from accident, misuse, or abuse. In order to obtain warranty service, ship the unit postage prepaid to:

SPER SCIENTIFIC
7720 E Redfield Rd, Ste 7
Scottsdale, AZ 85260
Email: info@sperscientific.com

Include a description of the problem and your return address along with the returned item. Return the warranty card within 10 days or register at: www.sperscientific.com.

LARGE DISPLAY ATC PH PENS

850051 and 850052

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