

LASER[®]

Part No. 9193

Antifreeze PH Meter

Instructions



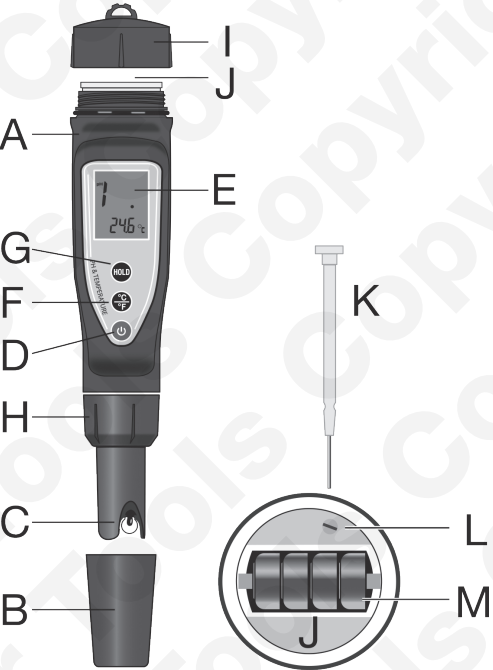
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Introduction

Coolant maintenance has evolved – checking the freezing point is no longer enough. With modern combustion and EV cooling systems, acidity levels must also be monitored to prevent internal corrosion. Over time, coolant degrades, increasing its acidity and potentially causing damage to the engine and cooling system. By using the 9193 Antifreeze pH Meter, users can detect coolant degradation early, helping prevent corrosion-related failures and extending the life of radiators, pumps, and other cooling system components.

Three pH solution powders are provided: 4.01; 6.86; 9.18 – these are used in solution with distilled water to calibrate the instrument.

Components



Ref.	Description
A	pH meter main body
B	Protective electrode cap
C	Electrode
D	Main ON/OFF switch
E	Display
F	Celsius/Fahrenheit selector
G	Display HOLD button
H	Electrode securing ring
I	Battery compartment cap
J	Battery compartment
K	Screwdriver for calibration
L	Calibration adjustment screw
M	Batteries

1. Remove the protective electrode cap (B).
2. Rinse and clean the electrode (C) with distilled water. Dry off with lint-free tissue.
3. Switch on the meter by pressing button (D).
4. Immerse the pH meter electrode (C) in the solution to be tested.
5. Stir gently and wait for the reading to stabilise.
6. Celsius/Fahrenheit can be selected via button (F).
7. Switch off the meter by pressing button (D).
8. After use, rinse and clean the electrode with distilled water to minimise contamination.

Instructions

Note: Antifreeze should typically have a pH between 7.5 and 10.5. A lower pH indicates acid buildup and possible corrosion issues.

- pH below 7.0: Coolant is too acidic and may cause corrosion. Replace the coolant.
- pH above 11.0: Coolant may be too alkaline, potentially damaging rubber seals. Replace the coolant.

- pH Calibration:**
- Three pH solution powders are provided: 4.01; 6.86; 9.18 – these are used in solution with distilled water to calibrate the instrument. Standard buffer solutions are also widely available for pH calibration. The pH powders are mixed with distilled water until completely dissolved.
1. Immerse the electrode in pH 6.86 (or pH 7), standard phosphate buffer solution (PBS), and gently stir.
 2. Allow the reading to stabilise and then adjust the calibration by turning the calibration adjustment screw (L). This screw is accessed by removing the battery compartment cap (I). Turn the adjustment screw until the display shows the corresponding pH figure for the PBS solution.
 3. Rinse and clean the electrode (C) with distilled water. Dry off with lint-free tissue.
 4. Continue the calibration by immersing the electrode in the supplied 4.01 and 9.18 solutions or standard buffer solution pH 4.0 (acidic) or pH10.00 (Borate). After approximately one minute the display should show the corresponding figure. Adjust the instrument accordingly if necessary.

Note: The pH meter should be calibrated regularly to ensure accurate readings. Over time, the electrode's sensitivity changes due to exposure to contaminants, residues, and aging.

- The instrument's pH range must be recalibrated whenever:
- The instrument has been used regularly, then not used for a period.
 - Frequent use (daily/weekly testing): calibrate at least once a week.
 - Calibrate before each testing session if the utmost accuracy is required.
 - Calibrate a new replacement electrode before first use.

Batteries:

Replace the batteries if the instrument does not switch on, or the display has faded. Unscrew the battery compartment cap (I) to access. Pay attention to battery polarity.

- Electrode Replacement:**
1. Remove the protective electrode cap (B).
 2. Unscrew the electrode securing ring (H).
 3. Carefully pull out the electrode.
 4. Take care when fitting the new electrode ensuring the contact pins on the instrument locate correctly.
 5. Ensure the gasket is in place correctly before screwing the securing ring back on.

Specifications:

Range:	0.00–14.00 (pH); 0–55°C.
Accuracy:	±0.1 pH; ± 1°C.
Automatic temperature compensation:	0 – 50°C.
Batteries:	4 x 1.5V LR44.
Operating temperature:	0 – 50°C.
Dimensions:	188 x 35 x 35mm.
Weight:	98g.

Precautions:

- Always refer to these instructions before use.
- Refer to manufacturer's service instructions for correct procedures and data.
- Take great care when working with hot, pressurised cooling systems. High risk of scalding.
- Ensure radiator/cooling system is cool before removing cap.
- Always wear hand and eye protection. Prevent skin contact with antifreeze solution. If it gets on your skin, wash the area immediately with soap and water.
- Antifreeze is highly toxic if ingested, especially ethylene glycol types.
- Observe standard workshop safety procedures when using the tester.
- Always rinse the electrode after each use with distilled water.
- Dispose of used coolant according to local authority guidelines. Never pour antifreeze down the drain or onto the ground.



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Guarantee

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