

**Model 550
pH and Temperature
Meter**

JENWAY

Operating Manual

Safety

Please read this information carefully prior to installing or using this equipment.

1. The unit described in this manual is designed to be operated only by trained personnel. Any adjustments, maintenance and repair must be carried out as defined in this manual, by a person qualified to be aware of the hazards involved.
2. It is essential that both operating and service personnel employ a safe system of work, in addition to the detailed instructions specified in this manual.
3. Other than for those items defined in the maintenance procedures herein there are no user serviceable items in this instrument. Removal of covers and attempted adjustment or service by unqualified personnel will invalidate the warranty and may incur additional charges for repair.
4. References should always be made to the Health and Safety data supplied with any chemicals used. Generally accepted laboratory procedures for safe handling of chemicals should be employed.
5. If it is suspected that safety protection has been impaired in any way, the unit must be made inoperative and secured against any intended operation. The fault condition should immediately be reported to the appropriate servicing authority.

Merci de lire attentivement ces informations avant d'installer ou d'utiliser cet appareil.

1. L'appareil décrit dans ce manuel est conçu pour être utilisé uniquement par des personnes formées. Tout réglage, maintenance ou réparation doit être effectué comme décrit dans ce manuel, par une personne qualifiée consciente des risques encourus.
2. Il est essentiel que les personnes utilisant et intervenant sur cet appareil respectent les règles de sécurité de travail, en plus des instructions détaillées précisées dans ce manuel.
3. En-dehors des éléments décrits dans les procédures de maintenance ci-incluses, cet appareil ne contient aucun élément réparable par l'utilisateur. L'enlèvement des capots et les tentatives de réglage ou de réparation par des personnes non qualifiées invalide toute garantie et entraîne un risque de frais de réparation supplémentaires.

4. Toujours se référer aux fiches techniques de santé et de sécurité accompagnant tout produit chimique utilisé. Respecter les procédures de laboratoire généralement acceptées pour la manipulation en toute sécurité des produits chimiques.
5. Si l'utilisateur suspecte qu'un problème quelconque puisse mettre en cause la sécurité, l'appareil doit être rendu inopérant en empêchant son utilisation. Communiquer la défaillance constatée au service de maintenance compétent.

Bitte lesen Sie diese Hinweise vor Installation oder Gebrauch dieser Ausrüstung sorgfältig durch.

1. Das in diesem Handbuch beschriebene Gerät darf nur von geschultem Personal bedient werden. Alle Anpassungen, Wartungsarbeiten und Reparaturen müssen entsprechend der Vorgaben in diesem Handbuch und von einer kompetenten Person, die mit den damit verbundenen Gefahren vertraut ist, durchgeführt werden.
2. Es ist wichtig, dass sowohl das Bedienungs- als auch das Service-Personal zusätzlich zu den detaillierten Anweisungen in diesem Handbuch ein sicheres Arbeitssystem einsetzen.
3. Mit Ausnahme der Teile, deren Wartungsverfahren in diesem Handbuch beschrieben sind, enthält dieses Gerät keine weiteren Teile, die vom Benutzer gewartet werden können. Das Entfernen von Abdeckungen und Versuche von hierfür unqualifiziertem Personal, Anpassungen oder Wartungsarbeiten durchzuführen, haben zur Folge, dass die Garantie verfällt und können zusätzliche Reparaturkosten auslösen.
4. Es ist jederzeit auf die sicherheitsrelevanten Daten sämtlicher verwendeter Chemikalien Bezug zu nehmen. Alle dazu vorhandenen Informationen, Hinweise und Warnungen zur Handhabung, Lagerung, Verwendung und Entsorgung müssen genauestens beachtet werden. Allgemein anerkannte Labormethoden zum sicheren Umgang mit Chemikalien sollten eingesetzt werden. Es ist jederzeit angemessene Sicherheitsausrüstung und persönliche Schutzausrüstung zu verwenden.
5. Besteht der Verdacht, dass die Sicherheitsvorrichtungen in irgendeiner Weise beschädigt wurden, muss das Gerät außer Betrieb genommen und gegen weiteren Gebrauch gesichert werden. Die Störung sollte der zuständigen Serviceeinrichtung unverzüglich gemeldet werden.

Leggere attentamente queste istruzioni prima di installare o utilizzare il dispositivo.

1. L'unità descritta nel presente manuale è stata realizzata per essere utilizzata solo da personale che ha ricevuto l'apposita formazione. Qualsiasi operazione di regolazione, manutenzione e riparazione deve essere effettuata sulla base di quanto indicato nel presente manuale da personale qualificato consapevole dei rischi connessi.
2. È fondamentale che il personale operativo e il personale addetto alla manutenzione utilizzino un sistema di lavoro sicuro, oltre a seguire le istruzioni specificate nel presente manuale.
3. Oltre a quelli indicati nelle procedure di manutenzione, all'interno di questo dispositivo non sono presenti altri elementi sui quali è possibile effettuare interventi. La rimozione delle protezioni e qualsiasi tentativo di regolazione o di manutenzione posto in essere da personale non qualificato invaliderà la garanzia. In questi casi, sarà necessario pagare un importo per le riparazioni effettuate.
4. È sempre necessario fare riferimento ai dati sulla salute e sulla sicurezza forniti con le sostanze chimiche utilizzate. Tutte le informazioni, i consigli e gli avvertimenti disponibili sulla manipolazione, la conservazione, l'uso e lo smaltimento devono essere rispettati attentamente. Adottare le procedure di laboratorio generalmente accettate per la gestione delle sostanze chimiche. Utilizzare sempre attrezzature protettive personali e di sicurezza adeguate.
5. Nel caso in cui si sospetti che la salute possa essere pregiudicata in qualsiasi modo, disattivare l'unità per renderla inutilizzabile. Qualsiasi condizione di errore deve essere immediatamente segnalata al responsabile per la manutenzione.

Lea esta información atentamente antes de instalar o utilizar este equipo.

1. La unidad descrita en este manual está diseñada para que solamente la utilice personal con formación. Cualquier operación de ajuste, mantenimiento y reparación debe llevarse a cabo del modo indicado en este manual y debe realizarla una persona cualificada que sea consciente de los peligros que implica.

2. Es fundamental que tanto los operarios como el personal de servicio utilicen un sistema de trabajo seguro, así como las instrucciones detalladas que se especifican en este manual.
3. Cualquier elemento que no se encuentre entre los definidos en los procedimientos de mantenimiento aquí descritos no podrá utilizarse en este instrumento. La extracción de las tapas y los intentos de ajuste o reparación por parte de personal no cualificado invalidarán la garantía y pueden incurrir en cargos adicionales por reparación.
4. Siempre deberían consultarse los datos sobre Salud y Seguridad que se suministran con cualquier producto químico que se utilice. Deben respetarse atentamente todas las indicaciones, recomendaciones y advertencias disponibles en relación con la manipulación, el almacenamiento y la eliminación de los productos. Es necesario llevar a cabo los procedimientos de laboratorio de aceptación generalizada para la manipulación segura de productos químicos. Se deben utilizar en todo momento los equipos adecuados de seguridad y protección personal.
5. Si existe la sospecha de que las medidas protectoras de seguridad han quedado dañadas en cualquier modo, la unidad debe inutilizarse y protegerse contra toda operación que se intente llevar a cabo. El estado de fallo debe comunicarse inmediatamente a la autoridad de servicio de mantenimiento y reparación pertinente.

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SECTION 1 - Introduction

1.1 INSTRUMENT DESCRIPTION

Model 550 is a general purpose handheld pH and temperature meter offering 2 point calibration and automatic buffer recognition. This model simultaneously displays both the temperature compensated pH readings and temperature.

1.2 INSTRUMENT SPECIFICATION

Model	550
Type	pH and temperature
Waterproof	No (IP65)
pH Range	0 to 14pH
pH Resolution	0.01pH
pH Accuracy	+/- 0.05pH
ATC	0 to 60°C
Temperature Range	0 to 100°C
Temperature Resolution	0.1°C
Temperature Accuracy	+/-0.5°C
No. of Calibration Points	2
Automatic Buffer Recognition	Yes – 4, 7 and 10 pH
Auto Shut Off	10 mins
Operating Temperature	0 to 50°C
Battery Life (hours)	5000
pH Connector	BNC
Temperature Connector	3.5mm jack
Dimensions (l x w x d)	128 x 56 x 25mm
Weight	130g
Instrument Warranty	2 years
Electrode/Temperature probe Warranty	6 months

SECTION 2 - Installation

2.1 UNPACKING

Remove the 550 meter from the packaging and ensure the following items are included:

Model 550 pH and temperature meter (550 271)

Epoxy bodied combination pH electrode (924 001)

Temperature probe (170 101)

pH 4, 7 and 10 buffer sachets

3 x AAA alkaline batteries (fitted)

Instruction manual (550 350)

Jenway Foreign Manual CD (JENMANCD)

2.2 INSTALLATION

Connect the electrode to the BNC socket on the instrument and remove the protective cap covering the electrode. Connect the temperature probe to the socket on the instrument and remove the protective sheath. Press the ON/OFF key to turn the instrument on.

2.3 DISPLAY AND CONTROLS

The pH meter has an LCD display which displays the pH and temperature simultaneously. The keypad used for this meter enables an easy and effective way of calibrating and performing a measurement.

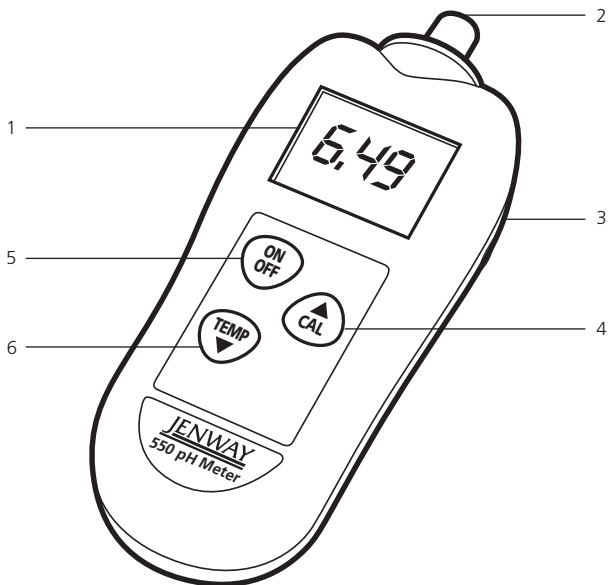


Fig. 2.3.1 – Display and Controls

1. Display showing pH and temperature reading
2. BNC connector for pH electrode
3. Connector for temperature probe
4. Calibration key for calibrating the instrument
5. On/Off key (single press), changing between °C and °F units (long press)
6. Temperature key enables manual temperature adjustment

The instrument will switch off automatically after 10 minutes of inactivity (i.e. no key presses). To disable the auto-off function press and hold the CAL key whilst switching the unit on. "Auto-off disabled" will be displayed across the screen. When the unit is turned off the auto-off function will be re-enabled.

To change the instrument temperature units between °C and °F, when the unit is switched off, press and hold the ON/OFF key for 8 seconds.

SECTION 3 - Temperature Adjustment

Model 550 is supplied with a temperature probe enabling automatic temperature compensation to be used. If the probe is disconnected then manual temperature compensation can be used instead.

3.1 MANUAL TEMPERATURE ADJUSTMENT

To manually adjust the temperature hold down the TEMP key for 3 seconds until 'Set' is displayed. Press or hold the Up or Down arrow keys to adjust the temperature in whole degrees. Press the ON/OFF key to store the temperature change. To view the set temperature, press the TEMP key and the temperature will be displayed for 10 seconds on the screen.

Note that manual temperature adjustment can only be performed if the temperature probe is not connected.

3.2 AUTOMATIC TEMPERATURE CORRECTION (ATC)

When the temperature probe is connected the 550 meter will automatically detect the connection and the temperature will be displayed continuously on the screen. The pH reading will be automatically compensated depending on the temperature of the sample being measured. The ATC range is 0 to 60°C (32 to 140°F). If the temperature probe is removed the temperature will be displayed for 10 seconds.

'Hi' is displayed if the readings are above 100°C.

'Lo' is displayed if the readings are below 0°C.

SECTION 4 - Calibration and Measurement

Before performing a measurement the instrument must be calibrated. It is recommended that the instrument is calibrated daily to achieve consistent and accurate results. Model 550 has a 2 point calibration process. The first calibration point MUST be buffer pH 7.00. The second calibration point depends on the acidity of the solution which is to be measured. For samples with a pH around 5 the second calibration point should be 4.01 pH buffer. For samples with a pH around 8 the second calibration point should be 10.01pH buffer. Always rinse the pH and temperature probes in de-ionised water before placing in each buffer solution. If the ATC probe is connected the instrument automatically compensates for the resulting change in electrode response due to temperature during the calibration process.

Press the ON/OFF key to switch the instrument on. If the temperature probe is not connected the display will show the set temperature for 10 seconds. If manual temperature adjustment is being used, the temperature of the solution must be measured using a thermometer so that the temperature can be manually adjusted.

Place the pH electrode and temperature probe into 7.00 pH buffer solution and allow the reading to stabilise. Stir then press and hold down the CAL key for 3 seconds. CAL will be shown in the display and the reading displayed will flash. With the display continuing to flash, place the electrode into 4.01 pH or 10.01 pH solution and allow the reading to stabilise, again stir the solution to remove any air bubbles. To finish press the CAL key and the display will show the solution value of the buffer.

To abort the calibration point at any point press the ON/OFF key and the meter will revert back to any previous calibration values.

'**Err**' will be shown if 7.00 pH buffer isn't used as the first calibration point.

If the electrode and buffer solution's combined error is greater than 1 pH then '**Err**' will be displayed and the calibration aborted. If the electrode and buffer solution's combined slope error is greater than 0.5pH '**Err**' will be displayed.

Once the instrument is calibrated the sample can be measured. Place the pH electrode and temperature probe into the sample and allow to stabilise.

If 'Hi' is displayed the readings are higher than 14pH.

If 'Lo' is displayed the readings are below 0pH.

If 'Err' is displayed the readings are more significantly outside of the specified measurement range or the electrode is damaged.

SECTION 5 - Care and Maintenance

Over time the electrode sensor will degrade, but regular calibrating, cleaning and the correct storage will prolong its life. The epoxy bodied combination electrode supplied with this instrument is suitable for the majority of tests carried out in aqueous solutions. For other applications, such as low ionic strength, Tris buffers, high temperatures and strongly acidic solutions a more suitable pH/reference electrode pair may be required. Details or advice are supplied on request (jenwayhelp@bibby-scientific.com).

If the electrode readings are slow or erratic, place the electrode into cleaning solution or 7.00 pH solution for at least half an hour to one hour before testing again. The temperature probe and pH electrodes are not waterproof and cannot be fully immersed in water. It is recommended that the instrument is calibrated daily to achieve consistent and accurate results.

The following general guidelines indicate the care and maintenance required:

Always rinse the pH electrode with cleaning solution or deionised water before next use.

Electrodes should be stored:

- away from direct sunlight
- in a vertical position
- within their specified temperature range

Always ensure the electrode is used within its specified temperature range. Ageing of electrodes used above their specified temperature is rapid and irreversible.

DO NOT touch the sensitive glass pH membrane or reference junction. Excess droplets of solution may be removed by gently blotting with filter paper or tissue.

DO NOT rub the electrode as this may induce an electrostatic charge.

During use ensure the electrode is rinsed between each measurement to eliminate the contamination of solutions.

5.1 BATTERY REPLACEMENT

Replace the battery when the battery icon is low.

This meter will continue to measure accurately but after further usage the meter will display 'FLAt bAT' and shutdown.

Unscrew the screws on the back of the meter and replace with three AAA batteries ensuring that the polarities are correct.

SECTION 6 - Accessories and Spare Parts

6.1 OPTIONAL ACCESSORIES

Part Code	Description
025 037	pH 4 buffer (red, 500ml)
025 038	pH 7 buffer (yellow, 500ml)
025 039	pH 10 buffer (blue, 500ml)
025 179	pH 4 buffer sachets (pack of 10)
025 180	pH 7 buffer sachets (pack of 10)
025 181	pH 10 buffer sachets (pack of 10)
025 192	pH electrode storage solution (250ml)
025 161	pH electrode cleaning solution (500ml)

6.2 SPARES

Part Code	Description of Spare Part
924 001	Epoxy bodied electrode
170 101	Temperature probe
033 274	Carry Case

SECTION 7 – Service and Support

7.1 SERVICE

Our dedicated service staff are on hand to help in the unlikely event that your Jenway equipment develops a fault. Please contact them by one of the following means with a clear description of the problem:

E-mail: service@bibby-scientific.com

Tel: +44 (0) 1785 810475

Fax: +44 (0) 1785 810471

On occasion it may be necessary for your equipment to be sent back to our Service Department for repair. In this case please contact the Service Department for a reference number which you should include with your faulty equipment. Please also ensure you include a clear description of the fault and a completed copy of our Decontamination Certificate. This is available as a downloadable pdf file at www.jenway.com, or contact us and we will be happy to send you a copy. Please clearly mark the package for the attention of the Service Department and post to the following address:

Bibby Scientific Ltd
Beacon Road
Stone
Staffordshire
ST15 0SA
United Kingdom

All replacement parts are guaranteed for 6 months and where ever possible, returned equipment is turned around in 5 working days.

7.2 TECHNICAL SUPPORT

Jenway have a dedicated Technical Support team made up of experienced scientists who are on hand to help with any applications advice and questions you may have about our products and how to use them. If you require any technical or application assistance please contact the team at:

E-mail: jenwayhelp@bibby-scientific.com Phone: +44 (0)1785 810433

SECTION 8 – Declaration of Conformity

Declaration of Conformity

pH Meter, Model 550

This product complies with the requirements of the EU Directives listed below:

2004/108/EC EMC Directive.
2011/65/EC RoHS Directive

CE mark affixed 2016.

Signed:  (Mr S. Marriott)

Date: 2/3/16

Authority: Technical Director
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