

# BENCH pH-METER

**\*\* code 322L \*\***

The pH-METER is an advanced research grade dual channel benchtop pH/ISE/mV meter that is completely customizable with a large colour LCD, capacitive touch keys, and USB port for computer connectivity. The instrument is rich in features including 5-point calibration, selectable resolution, data logging, alarm limits, comprehensive GLP, and much more. It retains simplicity with both dedicated key for routine operation and virtual keys that guide the user through setup options.

The instrument ensures confidence in measurements with the exclusive Instruments CAL Check™ feature that alerts the user to potential problems during calibration including if the buffer is contaminated or the probe needs to be cleaned.



Capacitive Touch Keypad, ISE Mode with Incremental Methods, CAL Check™

## Details

The instrument is an advanced research grade benchtop pH/mV/ISE dual channel meter that is completely customizable with a large colour LCD, capacitive touch keys, and USB port for computer connectivity.

The instrument features two galvanically isolated BNC connections for use with the expansive line of pH, ISE and ORP electrodes that Company offers. The instrument is supplied with the probe glass body, double junction, combination pH electrode that operates over a wide range of temperature from 0 to +100°C. All readings are automatically compensated for temperature variations with the separate temperature probe that is included.

As a pH meter, the instrument can be calibrated up to five points with eight pre-programmed buffers or five custom buffers. The instrument features exclusive CAL Check™ to alert the user of potential problems during the pH calibration process such as “Electrode Dirty/Broken” and “Buffer Contaminated.” The overall probe condition based on the offset and slope characteristic of the electrode is displayed as a percentage after calibration is complete.

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As an ISE meter, the instrument can be calibrated up to five points with a choice of seven fixed standards or five user-defined standards in any concentration unit. The calibration data including date, time, standards used, and slope can be viewed at any time along with the current measurement by selecting the Good Laboratory Practice (GLP) display option.

Three selectable logging modes are available: automatic, manual and AutoHold logging. Up to 100,000 data points per channel can be recorded in 100 lots, 50,000 records max/lot and exported to a computer for data review and storage.

## Features at-a-glance

**Highly Customizable User Interface** – The user interface of the instrument allows the user to show measurements in various modes: basic measurement with or without GLP information, real-time graphing, and logging data. Calibration stability criteria can be adjusted from fast, moderate, and accurate. Programmable alarm limits can be set to inside or outside allowable limits.

**Colour Graphic LCD** – The instrument features a colour graphic LCD with on-screen help, graphic, and custom colour configurations. The display allows for real-time graphing and the use of virtual keys provide for an intuitive user interface.

**Capacitive Touch** – The instrument features sensitive capacitive touch buttons for accurate keystrokes when navigating menus and screens. There are four dedicated keys that are used for routine operations including calibration and switching measurement modes and four virtual keys that change based upon use. The capacitive touch technology ensures the buttons never get clogged with sample residue.

**Two Galvanically Isolated pH/ORP/ISE Channels** – The instrument has two input channels that can be used for pH, ORP and ISE electrodes. Each input channel has connectors for BNC probes, reference probes and a temperature sensor. Each channel is galvanically isolated which means that two measurement probes can be in the same solution at the same time and the voltages produced will not interfere with each other.

**Choice of Calibration** – Automatic buffer recognition, semiautomatic, and direct manual entry pH calibration options are available for calibrating up to five points, from a selection of eight standard buffers and up to five custom buffers.

**GLP Data** – instrument includes a GLP Feature that allows users to view calibration data and calibration expiration information at the touch of a key. Calibration data include date, time, buffers used for calibration, and electrode offset and slope characteristics.

**CAL Check™** – CAL Check™ alerts users to potential problems during the calibration of the pH electrode. Indicators include “Electrode Dirty/Broken,” “Buffer Contaminated,” electrode response time and the overall probe condition as a percentage that is based on the offset and slope characteristics.

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ISE Measurement with Choice of Concentration Units – The instrument allows for calibration and readings in choice of concentration units. The choices of concentration units include ppt, g/L, mg/mL, ppm, mg/L, µg/mL, ppb, µg/L, mg/mL, M, mol/L, mmol/L, %w/v and a user-defined unit.

ISE Measurement with Incremental Methods – The known addition, known subtraction, analyte addition, and analyte subtraction incremental methods are pre-programmed into the instrument. Simply follow the on-screen guided procedure and the meter will perform the calculation automatically allowing for a higher level of accuracy to be obtained as compared to a direct ISE measurement.

Data Logging – Three selectable logging modes are available on the instrument: automatic, manual, and AutoHold logging. Automatic and manual logs up to 100 lots with 50,000 records max/lot with up to 100,000 total data points per channel. Automatic logging features the option to save data according to sampling period and interval.

Data Transfer – Data can be transferred to a PC with USB cable and dedicated software (both sold separately).

Contextual Help – Contextual help is always available through a dedicated “HELP” key. Clear tutorial messages and directions are available on-screen to quickly and easily guide users through setup and calibration. The help information displayed is relative to the setting/option being viewed.

Instrument that can be used in accordance with UNI EN ISO 3071, AATCC 81, GB 1840, etc, standards for the aqueous extract pH evaluation.

## Technical specifications

	<b>pH Specifications</b>
<b>pH Range</b>	-2.0 to 20.0 pH, -2.00 to 20.00 pH, -2.000 to 20.000 pH
<b>pH Resolution</b>	0.1, 0.01, 0.001 pH
<b>pH Accuracy (@25°C/77°F)</b>	±0.1 pH, ±0.01 pH, ±0.002 pH ±1 LSD
<b>pH Calibration</b>	automatic, up to 5-point calibration, eight standard buffers available (1.68, 3.00, 4.01, 6.86, 7.01, 9.18, 10.01, 12.45) and five custom buffers
<b>pH Temperature Compensation</b>	automatic or manual from -20.0 to 120.0 °C
<b>mV Range</b>	±2000 mV
<b>mV Resolution</b>	0.1 mV
<b>mV Accuracy</b>	±0.2 mV ±1 LSD
<b>Relative mV Offset Range</b>	±2000 mV
	<b>Temperature Specifications</b>

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<b>Temperature Range</b>	-20.0 to 120.0 °C, -4.0 to 248.0 °F, 253.15 to 393.15 K
<b>Temperature Resolution</b>	0.1 °C, 0.1 °F, 0.1 K
<b>Temperature Accuracy</b>	±0.2 °C, ±0.4 °F, ±0.2 K
	<b>ISE Specifications</b>
<b>ISE Range</b>	1 x 10 <sup>-6</sup> to 9.99 x 10 <sup>10</sup> concentration
<b>ISE Resolution</b>	1; 0.1; 0.01; 0.001 concentration
<b>ISE Accuracy @ 25°C/77°F</b>	±0.5% (monovalent ions); ±1% (divalent ions)
<b>ISE Calibration Points</b>	automatic, up to 5-point calibration, seven fixed standard solutions available (0.01, 0.1, 1, 10, 100, 1000, 10000 choice of concentration) and five custom solutions
	<b>Additional Specifications</b>
<b>Electrode/Probe</b>	probe glass body pH electrode with BNC connector and 1 m (3.3') cable (included)
<b>Temperature Probe</b>	stainless steel temperature probe with 1 m (3.3') cable (included)
<b>GLP</b>	calibration data including date, time, buffers used, offset and slope
<b>Logging</b>	record: 100,000 data point storage, 100 lots with 50,000 records/lot; interval: settable between 1 second and 180 minutes max log time; type: automatic, manual, AutoHold
<b>Input Channels</b>	2 - pH/ORP/ISE
<b>Display</b>	colour graphic LCD with on-screen help, graphing, and custom colour configuration
<b>Connectivity</b>	USB
<b>Environment</b>	0 to 50°C (32 to 122°F; 273 to 323 K), RH max 95% non-condensing
<b>Power Supply</b>	12 VDC adapter (included)
<b>Dimensions (L x W x H)</b>	160 x 231 x 94 mm (6.3 x 9.1 x 3.7")
<b>Weight</b>	1.2 kg (2.64 lbs.)
<b>Ordering Information</b>	Instrument is supplied with probe glass body pH electrode, temperature probe, electrode holder, pH 4.01 buffer solution sachet, pH 7.01 buffer solution sachet, electrode cleaning solution sachet (2), 3.5M KCl electrolyte solution (30 mL), 12 VDC adapter and instructions.
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Questo pHmetro digitale da banco rappresenta lo stato dell'arte nella misura del pH. La nuova interfaccia utente potenziata dal grande display grafico a colori retroilluminato, consente di far dialogare utente e strumento in un linguaggio semplice e diretto. L'interfaccia è interamente in italiano ed una guida in linea è sempre disponibile alla semplice pressione di un tasto.

L'ausilio del display grafico a colori facilita l'individuazione dei dati, generando grafici in tempo reale ed evidenziando i particolari più rilevanti.

Lo strumento è stato progettato per eseguire le misure più complete ed accurate di pH grazie alla risoluzione millesimale e ad un ampio range di misura (da -2 a 20 unità pH).

Lo strumento è inoltre fornito di ingresso per misure con elettrodi iono-selettivi e lo strumento offre le principali metodologie per misure incrementali. Massima versatilità anche nella calibrazione: fino a 5 punti a scelta tra gli 8 memorizzati e tra 5 valori impostabili dall'utente.

La funzione di diagnosi degli elettrodi esegue una verifica dello stato dell'elettrodo in fase di calibrazione per assicurarne sempre l'uso in condizioni ottimali.

Il software e il cavo per la connessione al PC via porta USB o RS232, disponibili come optional, integrano la gestione dei dati in modalità digitale.

Il pH-metro è fornito completo di elettrodo pH, sonda di temperatura, soluzioni di calibrazione e di ricarica dell'elettrodo, stativo portaelettrodi, trasformatore, pipetta, certificati di qualità ed istruzioni.

Strumento utilizzabile in conformità alle norme UNI EN ISO 3071, AATCC 81, GB 18401, ecc, per la valutazione del pH dell'estratto acquoso.



## Caratteristiche tecniche

Parametro	Valore
Scala pH:	da -2.000 a 20.000 pH
Risoluzione pH:	0.1 pH; 0.01 pH; 0.001 pH
Precisione pH (a 20°C):	±0.1 pH; ±0.01 pH; ±0.002 pH

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Calibrazione pH:	automatica fino a 5 punti con 8 valori standard memorizzati (pH 1.68; 3.00;4.01; 6.86; 7.01; 9.18; 10.01; 12.45) e 5 valori impostabili dall'operatore
Compensazione Temperatura:	automatica o manuale da -20.0 a 120.0°C
Risoluzione mV:	0.1 mV
Offset relativo:	±2000.0 mV
Precisione mV (a 20°C):	±0.2 mV
Scala temperatura:	da -20.0 a 120.0°C / da -4.0 a 248.0°F / da 253.15 a 393.15 K
Risoluzione temperatura:	0.1°C / 0.1°F / 0.1 K
Precisione a 20°C temperatura:	±0.2°C / ±0.4°F /±0.2 K
Scala Ioni Selettivi:	da 1 E-6 a 9.99 E10 unità di concentrazione
Risoluzione Ioni Selettivi:	1; 0.1; 0.01; 0.001 unità di concentrazione
Precisione ioni selettivi (a 20°C):	±0.5% (ioni monovalenti); ±1% (ioni divalenti)
Calibrazione ISE:	automatica a 5 punti
Elettrodo pH:	corpo in vetro; ricaricabile; connettore BNC; cavo 1 m (incluso)
Sonda di Temperatura:	da -20.0 a 120.0°C / da -4.0 a 248.0°F / da 253.15 a 393.15 K
Impedenza di ingresso:	1012 Ohm
Memorizzazione:	automatica a campione
Memorizzazione automatica:	100 lotti; 5000 campioni per lotto
Memorizzazione a campione:	100 lotti; 5000 campioni per lotto
Collegamento a PC:	USB/RS232
Condizioni di utilizzo:	da 0 a 50°C; U.R. max 95%
Alimentazione:	12 Vdc (con adattatore 230Vac incluso)
Dimensioni e peso:	160 x 231 x 94 mm / 1200 g
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CARATTERISTICHE GENERALI	GENERAL FEATURES
pH da -2.000 a 20.000 pH	pH range from -2.000 up to 20.000 pH
Risoluzione pH; 0.1 pH; 0.01 pH; 0.001 pH	pH resolution; 0.1 pH; 0.01 pH; 0.001 pH
Porte di comunicazione USB/RS232	Communication ports USB/RS232
Alimentazione elettrica: 100-230 V 50/60 Hz.	Power supply: 100-230 V 50/60 Hz.

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Dimensioni (L x P x H): 160 x 231 x 94 mm.	Dimensions (L x W x H): 160 x 231 x 94 mm
Peso netto: 1200 g	Net weight: 1200 g
<b>OPTIONAL</b>	<b>OPTIONAL</b>
Buffer pH 4.01 500 ml, code 322G.38	Buffer pH 4.01 500 ml, code 322G.38
Buffer pH 7.01 500 ml, code 322G 40	Buffer pH 7.01 500 ml, code 322G 40
Buffer pH 10.01 500 ml, code 322G 42	Buffer pH 10.01 500 ml, code 322G 42
Spruzzetta 500 ml (2 pcs), code 3127.12	Sparger 500 ml (pack of 2 pcs), code 3127.12
Beakers 100 ml in vetro pyrex per laboratorio (confezione 10 pcs), code 3127.8	Beakers 100 ml pyrex glass for laboratory (pack of 10 pcs), code 3127.8
Beakers 250 ml in vetro pyrex per laboratorio (confezione 10 pz), code 3127.2	Beakers 250 ml pyrex glass for laboratory (pack 10 pcs), code 3127.2
Software Windows® compatibile per gestione dati su PC, code 322G.34	Windows® Compatible Software for data management on PC, code 322G.34
Cavo USB, lunghezza 1.8 m per collegamento a PC, code 322G.36	USB extension 1.8 m long for PC connection, code 322G.36
Control Lab, personal computer code 237.92, monitor code 250.300, stampante a getto d'inchiostro code 250.4, set cartucce di ricambio code 250.322, set fogli A4 code 250.348; gruppo di continuità UPS code 2341.900, presa elettrica multipla code 250.344.	Control Lab, personal computer code 237.92, monitor code 250.300, ink jet printer code 250.4, set of spare ink jet, set of A4 paper sheets, UPS uninterruptible power source code 2341.900, multiple electric socket code 250.344.
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