

Dear Customer,

Thank you for choosing a Hanna Instruments® product. Please read this instruction manual carefully before using this instrument. For more information about Hanna Instruments and our products, visit www.hannainst.com or e-mail us at sales@hannainst.com. For technical support, contact your local Hanna Instruments office or e-mail us at tech@hannainst.com.

Preliminary Examination

Remove the instrument and accessories from the packaging and examine it carefully. For further assistance, please contact your local Hanna Instruments office or email us at tech@hannainst.com.

Each instrument is delivered in a rugged case and is supplied with:

- HI1230B pH electrode
- HI7662 temperature probe
- pH 4.01 buffer solution (1 sachet)
- pH 7.01 buffer solution (1 sachet)
- Cleaning solution (2 sachets)
- 9V Alkaline battery (1 pc.)
- Calibration screwdriver
- Instrument quality certificate
- Instruction manual

Note: Save all packing material until you are sure that the meter works correctly. Any damaged or defective item must be returned in its original packing material with the supplied accessories.

General Description & Intended Use

HI83141-1 is a portable, water-resistant meter designed to be paired with HI1230B combination pH electrode and HI7662 temperature probe for pH, mV, and temperature measurements. Optionally, the meter can be paired with HI3131B refillable ORP electrode (not supplied with the product) for accurate ORP measurements.

Main Features

- Two-point calibration (front panel calibration trimmers)
- Hand-strap on the bottom for a more secure grip
- Compact, heavy-duty, water-resistant instrument
- Ideal for applications that require a custom calibration point

Probe Features

HI1230B pH

- Durable, polyetherimide (PEI) resin body suitable for a wide range of applications and chemically resistant to many aggressive chemicals.
- Double junction reference. No silver from the electrode enters the sample. This design allows measurement in applications where silver ions in the sample are undesirable or silver precipitates on the junction are likely to form.

HI7662 Temperature

- Build-in NTC Thermistor for automatic temp. compensation (ATC)
- Stainless steel
- RCA connector

Specifications

Meter

pH	Range *	0.00 to 14.00 pH
	Resolution	0.01 pH
	Accuracy	±0.01 pH (@25 °C / 77 °F)
	Temperature compensation	Automatic, from 0 to 100 °C (32 to 212 °F)
	Calibration	Manual, 2-point (trimmers) Offset: ±1.00 pH; Slope: 80 to 110%
mV	Range *	±1999 mV
	Resolution	1 mV
	Accuracy	±1 mV (@25 °C / 77 °F)
Temperature	Range *	0.0 to 100.0 °C (32.0 to 212.0 °F)
	Resolution	0.1 °C / 0.1 °F
	Accuracy	±0.4 °C / ±0.8 °F (excluding probe error)
Probes (included)	HI1230B pH electrode; HI7662 temperature	
Battery type	1 x 9V Alkaline	
Battery life	Approximately 150 hours of continuous use	
Environment	0 to 50 °C (32 to 122 °F); 100% RH	
Auto shut-off	After 8 minutes of non-use	
Dimensions	145 x 80 x 36 mm (5.7 x 3.1 x 1.4")	
Weight	230 g (8.1 oz.)	

* The range may be limited by the probe's limits.

HI1230B pH Probe



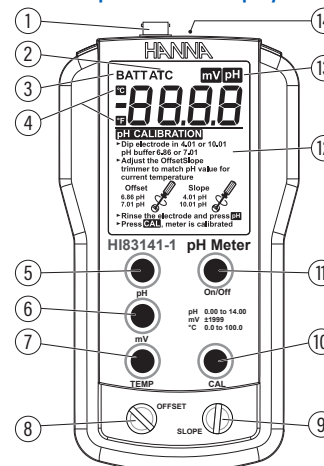
Reference	double, Ag/AgCl
Junction	ceramic, single
Electrolyte	gel
Recommended Operating Temp.	-5 to 70 °C (23 to 158 °F)
Max. Pressure	2 bar
Range	0 to 12 pH
Tip / Shape	spheric, Ø 7.5 mm (0.29")
Glass type	LT (low temperature)
Body material	PEI
Dimensions	Length: 163.5 mm (6.43")
	Shaft length: 120 mm (4.72")
	Shaft diameter: 12 mm (0.47")
Cable length	1 m (3.3'); coaxial

HI7662 Temperature Probe



Dimensions	Total length: 173.5 mm (6.8")
	Active part: 105 mm (4.1"); Ø 3.6 mm (1.4")
Cable length	1 m (3.3')

Functional Description & LCD Display



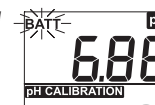
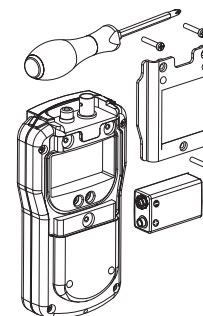
1. BNC connector (pH or ORP electrode)
2. Temperature compensation status (ATC)
3. Battery indicator (BATT)
4. Temperature unit (°C or °F)
5. pH key – pH range selection
6. mV key – mV (ORP) range selection
7. TEMP key – temperature measurement & unit selection
8. OFFSET trimmer – adjusts offset (pH calibration)
9. SLOPE trimmer – adjusts slope (pH calibration)
10. CAL key – enters pH calibration
11. On/Off key
12. LCD display
13. Measurement mode (mV or pH)
14. RCA connector (temperature probe)

General Operations

Battery Replacement

1. Turn off the instrument.
2. Remove the three screws on the back of the instrument to open the battery compartment.
3. Remove the old battery. Insert one new 9V Alkaline battery in the battery compartment while paying attention to the correct polarity.
4. Close the battery compartment using the three screws.

Note: If the "BATT" tag is displayed blinking, battery level is too low and the battery needs to be replaced.



Connecting the pH Electrode & Temperature Probe

Align the HI1230B BNC connector with the socket and plug it in. Rotate the locking shell until it clicks in place. Plug the HI7662 probe RCA connector into the designated socket.

Turning the Meter On

Press the On/Off key to turn the meter on. Initialization screen briefly displays all the LCD segments followed by the battery status, alerting user to the remaining battery life.



Sensor Preparation & Conditioning

1. Remove the protective cap.
2. If the protective cap does not contain any liquid, pour HI70300 Storage solution into the cap.
3. Place it back on the sensor and soak for at least 30 minutes before use.
4. Rinse with tap water prior to Calibration or Measurement.

pH Calibration

For high accuracy, frequent calibrations are recommended. Additionally, the pH range should be recalibrated:

- whenever the pH electrode is replaced
- at least once a month
- after testing aggressive chemicals

Preparation

One- or two-point calibration can be performed using one of the following standard buffer solutions: pH 4.01, 6.86 (NIST), 7.01, 9.18 (NIST), or pH 10.01.

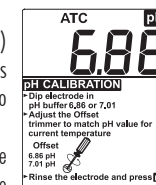
When a two-point calibration is required, use pH 7.01 or pH 6.86 buffer as first calibration point.

Use pH 7.01 (HI7007) (or pH 6.86 NIST equivalent) for neutral samples, pH 4.01 (HI7004) for acidic samples, pH 10.01 (HI7010) (or pH 9.18 NIST equivalent) for alkaline samples.

For best results, use a rinse beaker and a separate calibration beaker for each buffer. Discard rinsing buffers after use.

Procedure

1. Connect the probes and turn the meter on.
2. Remove the protective cap and rinse the tip with first buffer being used for calibration (e.g. pH 7.01).
3. Place the tip of the electrode 4 cm (1 1/2") into correct buffer. Allow a few minutes for the probe and buffer to stabilize/to reach thermal equilibrium.
4. Press the CAL key. The calibration range is automatically recognized and the offset on-screen tutorial messages are displayed.
5. Press the TEMP key to read the buffer temperature. Take a note of the displayed value.
6. Press the pH key to take the pH reading. Stir gently.



- Wait a few minutes and use the calibration screwdriver to adjust the OFFSET trimmer until it displays the pH value at the previously noted temperature. See pH Buffer Values at Various Temperatures table.

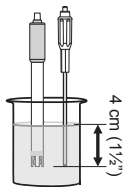


- Press the **pH** key.
- Rinse with second buffer being used for calibration (e.g. pH 4.01 or pH 10.01). Place the tip of the electrode 4 cm (1 ½") into the second buffer. Stir gently.
- Press **TEMP** key to read buffer temperature. Take a note of the displayed value.
- Press **pH** key to take a pH reading.
- Wait a couple of minutes and adjust the SLOPE trimmer until it displays the pH value at the previously noted temperature. See pH Buffer Values at Various Temperatures table.
- Press **CAL** key. The pH calibration is now complete.



Measurement

- Turn the meter on.
- After initialization, battery status is displayed. Replace the battery if BATT tag is displayed blinking.
- Connect the probe (pH or ORP) to the meter.
- For accurate pH measurements, calibrate the meter for pH before use.
- Place the tip of the electrodes 4 cm (1 ½") into the sample.
- Press the designated key to select corresponding measurement mode (i.e. **pH** for pH measurements, **mV** for mV or ORP measurements, and **TEMP** for temperature measurements).



- Stir briefly and wait a few minutes for the measurement to stabilize. Measured value and unit tag is displayed for the selected parameter.

Note: If measurements are taken in different samples successively, rinse the probes between measurements to avoid cross contamination. After cleaning, rinse the probes with some of the samples to be measured next.

Warnings

If measured value is outside the parameter limit of the probe, the maximum or minimum value is displayed blinking.

pH Buffer Values at Various Temperatures

Temp		pH Values		
°C	°F	4.01	7.01	10.01
0	32	4.01	7.13	10.32
5	41	4.00	7.10	10.24
10	50	4.00	7.07	10.18
15	59	4.00	7.04	10.12
20	68	4.00	7.03	10.06
25	77	4.01	7.01	10.01
30	86	4.02	7.00	9.96
35	95	4.03	6.99	9.92
40	104	4.04	6.98	9.88
45	113	4.05	6.98	9.85
50	122	4.06	6.98	9.82
55	131	4.07	6.98	9.79
60	140	4.09	6.98	9.77
65	149	4.11	6.99	9.76
70	158	4.12	6.99	9.75
75	167	4.14	7.00	9.74
80	176	4.16	7.01	9.73
85	185	4.17	7.02	9.74
90	194	4.19	7.03	9.75
95	203	4.20	7.04	9.76

Accessories

Ordering info. Product description

HI1230B	Plastic body, double-junction, gel, combination pH electrode with BNC connector and 1 m (3.28 ft) cable
HI3131B	Glass-body, refillable, combination platinum ORP electrode with BNC connector and 1 m (3.28 ft) cable
HI7662	Temperature probe with 1 m (3.28 ft) cable
HI7004M	pH 4.01 buffer solution, 230 mL
HI7006M	pH 6.86 buffer solution, 250 ml
HI7007M	pH 7.01 buffer solution, 230 mL
HI7009M	pH 9.18 buffer solution, 250 ml
HI7010M	pH 10.01 buffer solution, 230 mL
HI70300M	Storage solution, 230 mL
HI7061M	General cleaning solution, 230 mL
HI7091L	Reducing pretreatment solution, 500 mL + 14 g (set)
HI7092M	Oxidizing pretreatment solution, 250 mL
HI731326	Calibration screwdriver (20 pcs.)
HI76405	Electrode holder

Certification

All Hanna® instruments conform to the CE European Directives.



RoHS
compliant



Disposal of Electrical & Electronic Equipment. The product should not be treated as household waste. Instead, hand it over to the appropriate collection point for the recycling of electrical and electronic equipment, which will conserve natural resources.

Disposal of waste batteries. This product contains batteries, do not dispose of them with other household waste. Hand them over to the appropriate collection point for recycling.

Ensuring proper product and battery disposal prevents potential negative consequences for the environment and human health. For more information, contact your city, your local household waste disposal service, or the place of purchase.

Recommendations for Users

Before using this meter, make sure that it is entirely suitable for your specific application and for the environment in which it is used. Any variation introduced by the user to the supplied equipment may degrade the meter's performance. For your and the meter's safety do not use or store the meter in hazardous environments.

Warranty

HI83141-1 is warranted for a period of two years against defects in workmanship and materials when used for its intended purpose and maintained according to instructions. Electrodes and probes are warranted for a period of six months. This warranty is limited to repair or replacement free of charge. Damage due to accidents, misuse, tampering, or lack of prescribed maintenance is not covered. If service is required, contact your local Hanna Instruments® office. If under warranty, report the model number, date of purchase, serial number and the nature of the problem. If the repair is not covered by the warranty, you will be notified of the charges incurred. If the instrument is to be returned to Hanna Instruments office, first obtain a Returned Goods Authorization (RGA) number from the Technical Service department and then send it with shipping costs prepaid. When shipping any instrument, make sure it is properly packaged for complete protection.

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INSTRUCTION MANUAL

HI83141-1

Portable pH/mV/Temperature Meter

