I321 Ionomètre Portable

Caractéristiques :

Ionomètre professionnel pour connecter toute électrode à ion spécifique
Conçu pour une utilisation en extérieur
Ecran géant
2 à 5 Points de Calibration : (0.001, 0.01, 0.1, 1, 10, 100, 1000, 10000ppm, mg/L, mol/L, mmoL/L)
Lecture directe de la concentration en ion.
Différentes unités de mesure au choix : ppm, mg/L ou mol/L.
La compensation automatique de température fournit une lecture précise sur toute la gamme et une icône de stabilité affiche automatiquement l'état de la mesure du courant.
Fonction Hold pour geler la lecture sur l'écran et une mesure en mV est disponible pour afficher la performance de l'électrode

Diagnostic automatique de l'électrode avec affichage de la pente.
Guide d'utilisation et d'aide en lecture sur l'écran géant de l'instrument
Menu système entièrement paramètrable sur 8 critères avec choix du nombre de points de calibration, de la précision, de la stabilité de lecture, de l'arrêt automatique etc. Mémoire interne avec capacité de stockage de 500 données.

Inclus:
Instrument, Sonde de Temperature et piles
Electrode (s) à ion spécifique et standards de calibration à choisir par l'utilisateur en fonction de ses besoins analytiques

Spécifications:

Modèle	I321
Gamme Ion :	0.001～19999ppm, mg/L, mol/L *(en fonction de la gamme de mesure de l'électrode à ion spécifique)*
Précision Ion :	±0.5% pleine échelle (Monovalent), ±1% pleine échelle (Divalent)
Gamme mV :	-1999.9～1999.9mV
Précision mV :	±0.2mV
Gamme Température :	0～105°C, 32～221°F
Précision Température :	±0.5°C
Points de Calibration :	2～5 points (0.001, 0.01, 0.1, 1, 10, 100, 1000, 10000ppm, mg/L, mol/L, mmoL/L)
Temperature Compensation :	0～100°C, 32～212°F, Manuelle ou Automatique
Fonction Hold :	Manuelle ou Automatique
Arrêt :	Manuel ou Automatique (Aprés 10, 20, 30 minutes si aucune touche n'est pressée)
Mémoire interne :	Stocke jusqu'à 500 données
Sortie :	Interface USB
Connectique :	BNC
Alimentation :	Piles : 3×1.5V "AA"
Dimmensions :	170(L)×85(W)×30(H)mm
Poids :	300g

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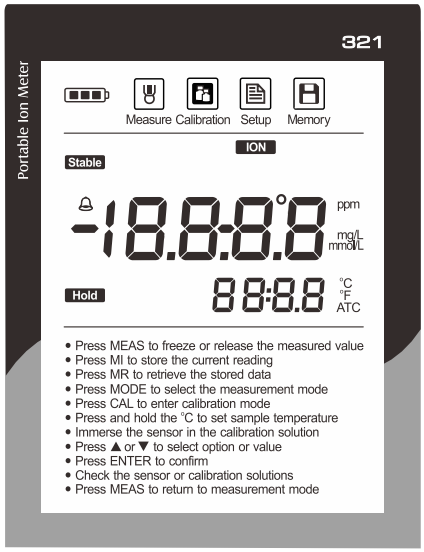
Display

I321 portable ion meter is equipped with a clear and bright LCD display that used to show measured values, mode indicators and help message. The following table describes the meaning of each indicator.

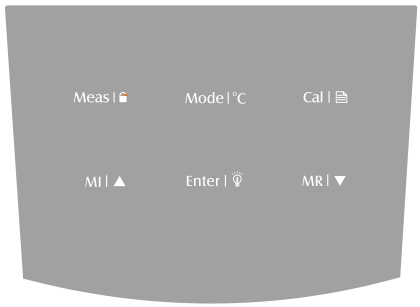


INDEX:

Measure	Measurement mode indicator: Indicates meter is in the measurement mode		Low Battery Alarm: When battery is depleted, the indicator will disappear
Calibration	Calibration mode indicator: Indicates meter is in the calibration mode	Stable	Stable indicator: Indicates the measured value has stabilized
Setup	Setup mode indicator: Indicates meter is in SETUP mode	Hold	Hold indicator: Indicates the displayed value has been frozen
Memory	Memory mode indicator: Indicates data is stored into memory		Calibration Due Reminder: Prompts user to calibrate the meter regularly

Keypad

The meter has a succinct membrane keypad, names and symbols describe the each function key controls.

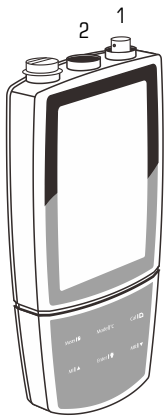


INDEX:

KEY	DESCRIPTION
MEAS	🔓	• Power the meter ON/OFF. • Freezes the measured value on the display, press the key again to resume measuring. • In the calibration or setting mode, exits current mode and returns to measurement.
MODE	°C	• Toggles between ion concentration and mV measurement modes. • Press and hold the key to enter temperature setting mode.
CAL	🖹	• Press the key to enter the calibration mode. • Press and hold the key to enter the setup menu.
MI	▲	• Press the key to store current measured value. • Press ▲ key in setup mode to scroll up through menu. • Press ▲ key in temperature setting mode to increase the setting value.
MR	▼	• Press the key to view calibration report or stored data. • Press ▼ key in setup mode to scroll down through menu. • Press ▼ key in temperature setting mode to decrease the setting value.
ENTER	💡	• Confirms the calibration, setting value or displayed option. • Press and hold the key to turn On/Off the backlight.

Connectors

I321 portable meter provides 2 connectors for connecting the various types of sensors. Listed in the below table are the details of these connectors.



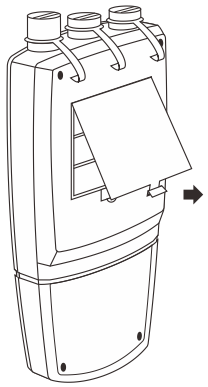
INDEX:

NO.	CONNECTOR	FUNCTION
1	BNC Connector	For connecting the Ion Selective Electrodes
2	Phone Jack	For connecting the temperature probe

Inserting the Batteries

Before using the meter, insert three 1.5V "AA" alkaline batteries into battery compartment, follow the procedure outlined below.

1. Remove the battery cover from meter's backside.



2. Insert the batteries into the battery compartment, note polarity.
3. Replace the battery cover into its original position. Installation is completed.

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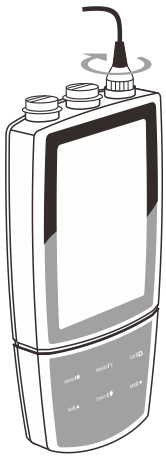
When batteries are depleted, the meter allows you to use the USB cable connected to computer as a temporarily power supply.

Connecting the Electrode

Take out the Ion Selective Electrode from the carrying case. Insert the BNC connector into corresponding connector socket. Rotate and push the connector clockwise until it locks. After connection is completed, DO NOT pull on the sensor cord. Always make sure that the connector is clean and dry.



Prior to Use

- Remove the protective cap from the bottom of the Ion Selective Electrode.
- Soak the electrode in the diluted standard solution (e.g., 100ppm) for at least 10 minutes.

Power On/Off

- Press MEAS key to turn on the meter, the display shows measured values, mode indicators and help messages.
- Press and hold the MEAS key for 3 seconds, the meter will turn off.
- If you do not press any key within the specified time period, the meter will turn off automatically.

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To disable the auto-off function, please read the SETUP MENU section.

Setup Menu

I321 portable ion meter contains an integrated setup menu that allows you to customize each displayed option to meet measurement requirements.

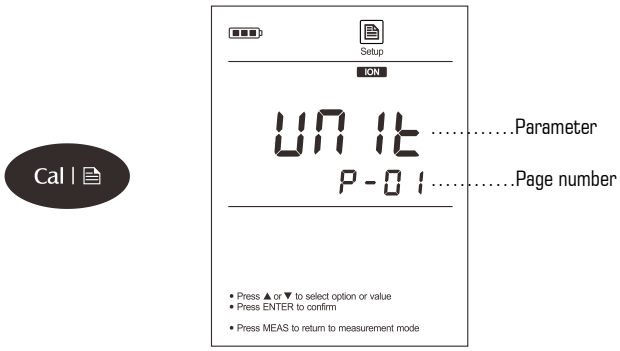
INDEX:

PARAMETER	DESCRIPTION	OPTIONS	DESCRIPTION	DEFAULT
UNIt	Measurement Unit: Sets the default ion concentration and temperature units.	ppm	Parts per million	●
		mg/L	Milligrams per liter	
		mol/L	Moles per liter	
		°C	Degrees Celsius	●
		°F	Degrees Fahrenheit	
CAL	Calibration Points: Select the number of calibration points.	2	2 points	●
		3	3 points	
		4	4 points	
		5	5 points	
ION	Ion Valence: Select the ion valence of sensor.	1	Monovalent	●
		2	Divalent	
StA	Stable Criteria: Sets the stability criteria for measurement. When the "LO" option is enabled, measuring value will stabilize quickly, but reading is less accurate. When the "HI" option is enabled, measuring value will stabilize slowly, but guarantees high accuracy.	LO	Low	●
		HI	High	
HOLd	Auto-Hold: When the auto-hold function is enabled, the meter will automatically sense a stable end-point reading and freeze it.	YES	Enable	
		NO	Disable	●
OFF	Auto-Power Off: When the auto-off power is enabled, if you do not press any key within a specified time period, the meter will automatically turn off.	10	10 minutes	
		20	20 minutes	
		30	30 minutes	
		NO	Disable	●
CALL	Calibration Due: When calibration due reminder is enabled, if you do not recalibrate meter within a specified time period, the meter will automatically show 🔔 indicator.	1...31	1 to 31 days	
		OFF	Disable	●

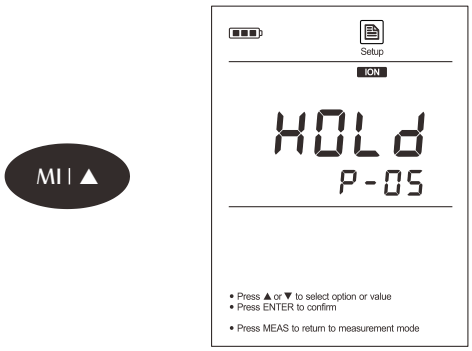
dAtE	Date and Time: Sets the date and time of the meter.	---	---	
CLr	Clear stored data: Clear all stored data.	YES	Enable	
		nO	Disable	•
rSt	Reset: Reset function allows user to restore the meter back to factory default parameters. When this function is enabled, all calibration values and selected parameters will be lost or reset.	YES	Enable	
		nO	Disable	•

SETTING THE DEFAULT PARAMETERS:

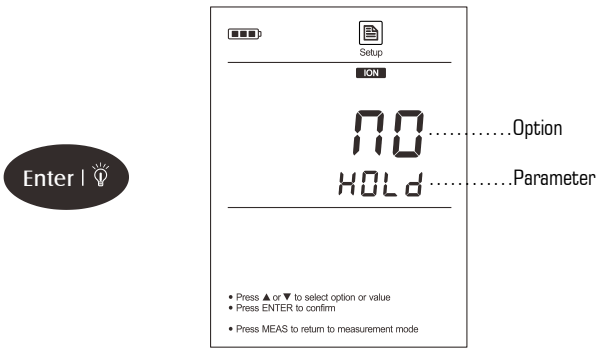
1. Press and hold the 🖹 key for 3 seconds, the meter enters setup menu, the display shows selectable parameter and page number.



2. Press ▲ or ▼ key to scroll through menu, select the parameter you want to set (Refer to Setup Menu section).



3. Press ENTER key to confirm, the display shows an option in the submenu.



4. Press ▲ or ▼ key to select the desired option.
5. Press ENTER key to confirm, the meter returns to measurement mode. Setting is completed.

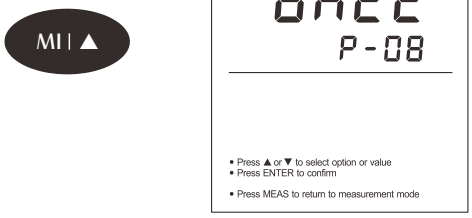
EXIT THE SETUP MENU:

During the setup mode, if you want to exit setup menu, press MEAS key, the meter will return to measurement mode immediately.

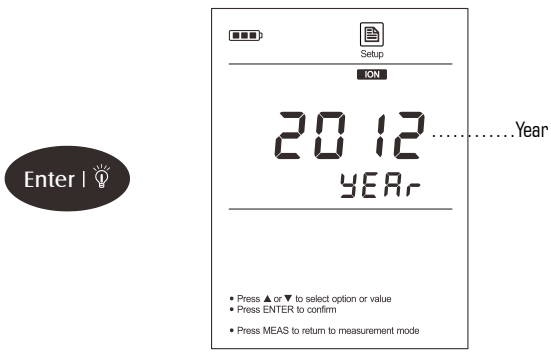
Setting the Date and Time

I321 portable ion meter has a real time clock that is used to time-stamp stored measured value and calibration data. Follow the steps below to set the date and time during the first use.

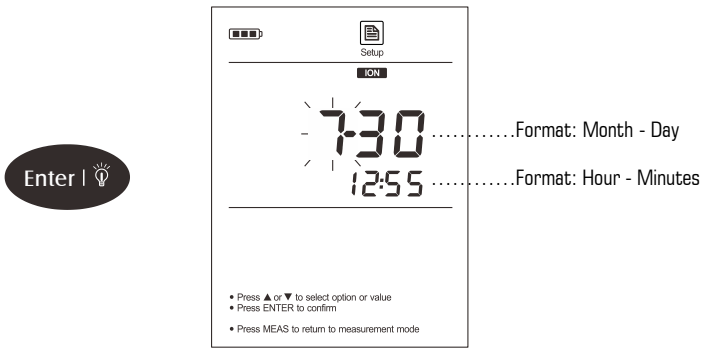
1. Press and hold the 🖹 key for 3 seconds to enter the setup menu.
2. Press ▲ or ▼ key until the display shows “Date” option.



3. Press ENTER key to confirm, the meter shows current year.



4. Press ▲ or ▼ key to set the year.
5. Press ENTER key to confirm, the meter shows current date and time ((Format: mm-dd, hh-mm)



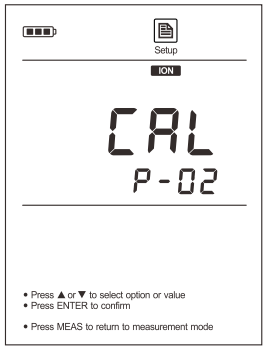
6. Press ▲ or ▼ key to set the date and time.
7. Press ENTER key to confirm, the meter returns to measurement mode. Setting is completed.

Selecting the Calibration Points

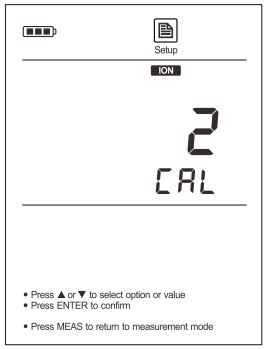
I321 portable ion meter supports ion concentration calibration up to 5 points with minimum of 2 points, available calibration points include the following options.

MEASUREMENT UNITS	CALIBRATION POINTS
ppm	0.001, 0.01, 0.1, 1, 10, 100, 1000, 10000
mg/L	0.001, 0.01, 0.1, 1, 10, 100, 1000, 10000
mol/L	0.001, 0.01, 0.1, 1, 10
mmol/L	0.001, 0.01, 0.1

If you need to modify the number of calibration points, please follow the steps below.
1. Press and hold the 🖹 key for 3 seconds to enter the setup menu.
2. Press ▲ key, the display shows "CAL/P-02" (Calibration Point) option.



3. Press ENTER key to confirm, the meter enters the setting mode.
4. Press ▲ or ▼ key to select the number of calibration points.

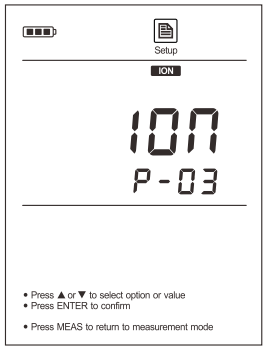


5. Press ENTER key to confirm, the meter returns to measurement mode. Setting is completed.

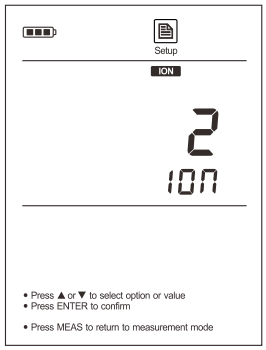
Selecting the Ion Valence

I321 portable ion meter is capable of connecting a variety of ion selective electrodes. For the divalent ions, you need to set the ion valence before calibration or measurement.

1. Press and hold the 🖹 key for 3 seconds to enter the setup menu.
2. Press ▲ key, the display shows "ION/P-03" (Ion Valence) option



3. Press ENTER key to confirm, the meter enters the setting mode.
4. Press ▲ or ▼ key to select the ion valence.

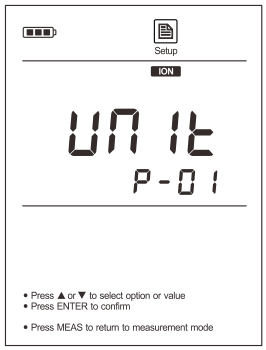


5. Press ENTER key to confirm, the meter returns to measurement mode. Setting is completed.

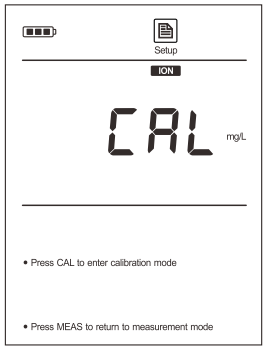
Selecting the Concentration Unit

I321 portable ion meter is capable of using the mg/L, ppm or mol/L as measurement unit of concentration. The factory default is ppm. If you need to convert measurment unit, the meter must be recalibrated.

1. Press and hold the ▤ key for 3 seconds to enter the setup menu.
2. Press ▲ key, the display shows “UNIT” option.



3. Press ENTER key to confirm, the meter enters the setting mode.
4. Press ▲ or ▼ key to select the desired concentration unit (ppm, mg/L, mol/L).
5. Press ENTER key to confirm, the “CAL” indicator will flashing uninterruptedly indicating that the meter is waiting for calibrating.



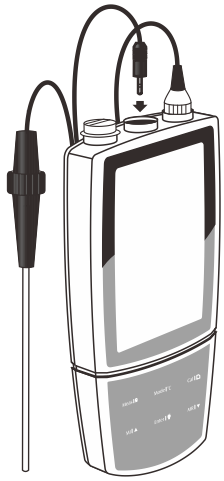
6. Press CAL key to enter the calibration mode or MEAS key to cancel option.

Temperature Compensation

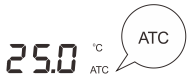
In order to get accurate measuring results, you need to enable the manual or automatic temperature compensation before measurement or calibration.

AUTOMATIC TEMPERATURE COMPENSATION:

- Insert the connector of temperature probe into the meter's phone jack.



- The "ATC" indicator will show on the display, the meter is now switched to automatic temperature compensation mode.



MANUAL TEMPERATURE COMPENSATION:

1. DO NOT connect the temperature probe to meter.
2. Press and hold the °C key for 3 seconds to enter temperature setting mode.
3. Press ▲ or ▼ key to set the temperature value of sample.
4. Press ENTER key to confirm, the meter returns to measurement mode. Setting is completed.

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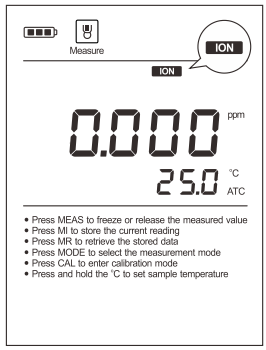
In the temperature setting mode, press ▲ or ▼ key once, the setting value will increase or decrease by 0.1. Press and hold the ▲ or ▼ key, the setting value will increase or decrease by 1.

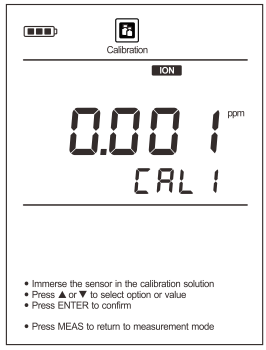
Ion Concentration Calibration

To obtain accurate measurement results, we recommend that you perform ion calibration and measurement at same temperature. If you are not calibrate the meter or calibration is not successfully, the display will always show "0.000".

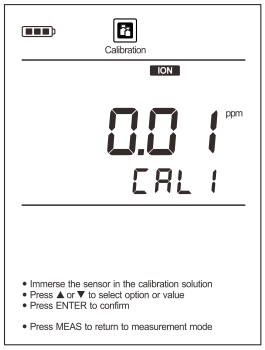
1. Press MODE key until the meter shows ION indicator.



2. Press CAL key, the meter shows 0.001ppm (or mg/L, mol/L, mmol/L).

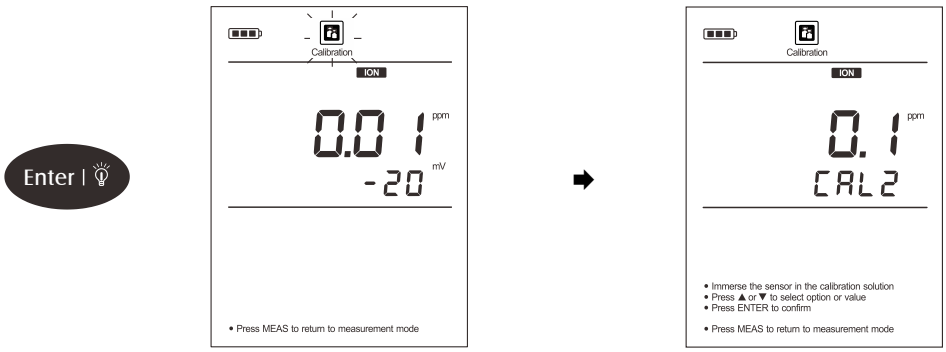


3. If necessary, press ▲ or ▼ key to select the desired calibration point (e.g., 0.01ppm).

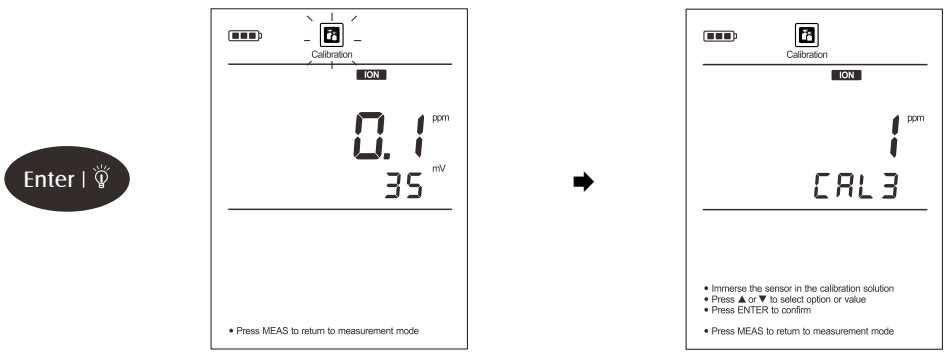


4. Rinse the Ion Selective Electrode with distilled water, then rinse with a small amount of ion standard solution.

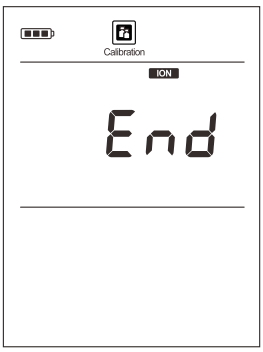
5. Dip the electrode into corresponding calibration solution. Stir the sensor gently to create a homogenous solution.
6. Press ENTER key to confirm, “Calibration” indicator begins flashing. Wait for the measured value to stabilize, the display shows “0.1/CAL2”. The meter prompts you to continue with second point calibration.



7. Rinse the Ion Selective Electrode with distilled water. Dip the electrode into corresponding calibration solution. Stir the sensor gently.
8. Press ENTER key, “Calibration” indicator begins flashing. Wait for the measured value to stabilize, the display shows “1/CAL3”. The meter prompts you to continue with third point calibration.



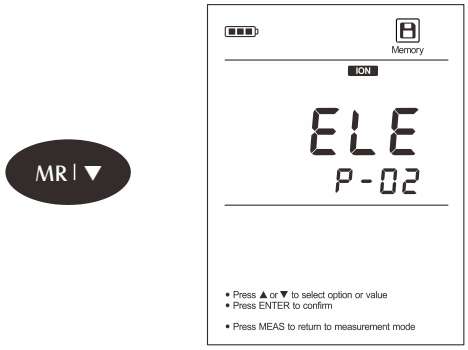
9. Repeat steps 7 to 8 above until the display shows “END”, the meter returns to measurement mode automatically. Calibration is completed.



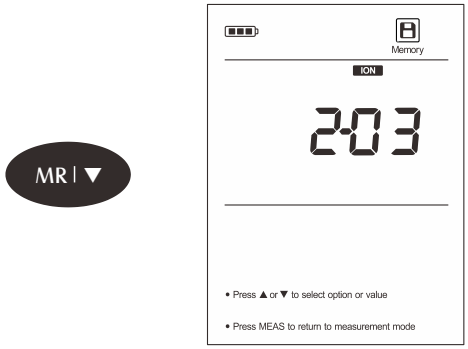
Ion Calibration Report

This program lets you check the slope of the Ion Selective Electrode.

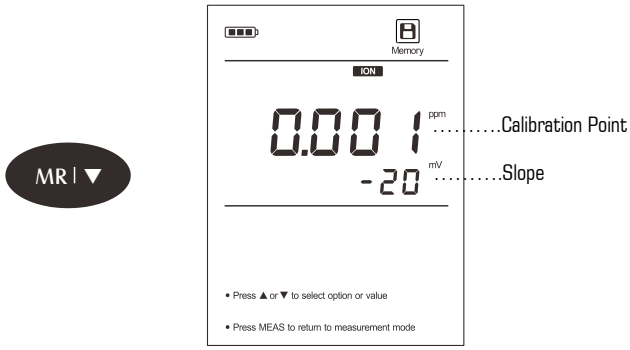
1. Press MR key in the ion measurement mode, the meter shows "LOC/P-01".
2. Press ▲ or ▼ key until the display shows "ELE/P-02" (Electrode Diagnosis).



3. Press ENTER key to confirm, the meter shows the last calibration date (Format: mm-dd).



4. Press ▼ key, the meter shows calibration point and its slope.

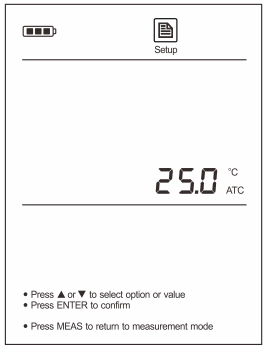


5. After the browsing, press MEAS key to exit the current mode.

Temperature Calibration

During the measurement, when automatic temperature compensation is enabled, if the temperature reading displayed differs from that of an accurate thermometer, you need to calibrate the meter.

1. Press and hold the °C key for 3 seconds to enter temperature calibration mode, the display shows current temperature reading.



2. Press ▲ or ▼ key to set the temperature value.
3. Press ENTER key to confirm. Calibration is completed.

Ion Concentration Measurement

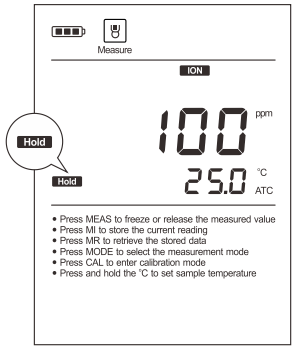
1. Press MODE key until the meter shows ION indicator.
2. Rinse the Ion Selective Electrode thoroughly with distilled water. Dip the electrode into the sample solution.
3. If your sample is belong to low concentration liquids or some interfering ions are present in the solution, we suggest you that adding the Ionic Strength Adjuster into the sample solution.
4. Stir the sensor gently. Wait for the reading to stabilize, record the measured value on the display.

mV Measurement

Press MODE key until display shows measurement unit "mV". Rinse the electrode thoroughly with distilled water. Dip the electrode into the sample solution. Wait for the measured value to stabilize, record the reading on the display.

Hold Function

I321 portable ion meter contains two data hold modes. When the Auto-Hold function is enabled, the meter will automatically sense a stable endpoint reading and freeze it, "HOLD" indicator appears on the display. If the Auto-Hold function is disabled, press 🔒 key, the meter will immediately freeze currently displayed value. Press the key again to resume measuring.

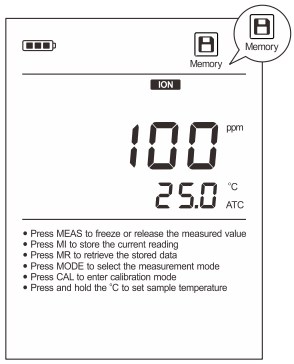


Storing and Recalling Data from Memory

The meter allows up to 500 data sets to be stored and recalled.

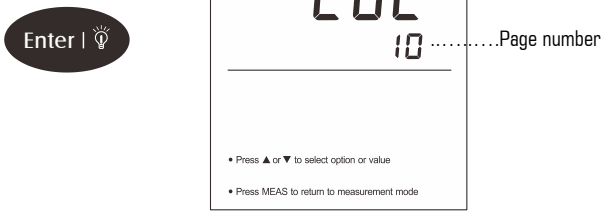
MEMORY INPUT:

During the measurement process, press MI key to input measured value into the memory, "Memory" indicator appears on the display.

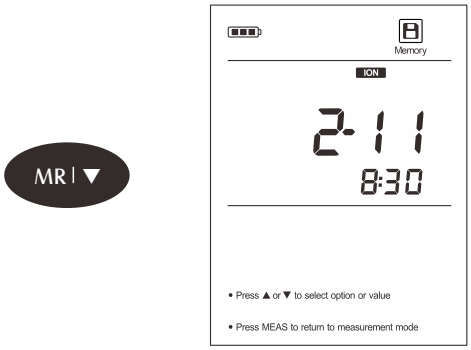


MEMORY RECALL:

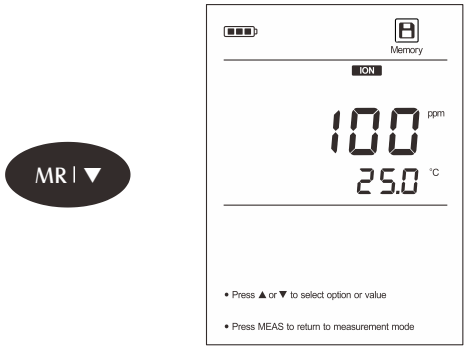
1. Press MR key in the measurement mode, the meter shows “LOC” (Data Log).
2. Press ENTER key to confirm, the meter shows page number of the stored data.



3. Press ▼ key, the meter shows date and time of the stored data (Format: mm-dd).



4. Press ▼ key again, the display shows the stored data.



5. After the browsing, press MEAS key to exit the current mode.