EDT directION
ELECTROCHEMISTRY PRODUCTS

QC355TX - Routine QC pH Meter - Users Manual

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SECTION 1 - Introduction

Description

The QC355(Tx) pH meter is a simple-to-operate bench pH meter. The meter utilises automatic calibration to one or two points: automatic temperature compensation is compulsory and the inbuilt calibration clock reminds the user when re-calibration is necessary.

Unpacking

Verify that you have received all equipment. If you have any questions about the shipment, please call EDT Direct ION Ltd. or your agent.
When you receive the shipment, inspect the container for any signs of damage. Note any evidence of rough handling in transit. Immediately report any damage to the agent.

Note

The carrier will not honour any claims unless all shipping material is saved for their examination. After examining and removing contents, save packing material in the event that re-shipment be necessary.
The following items are packed in the box:

- QC355TX Meter
- E8051 Temperature Probe
- E8061 Electrode Stand
- AC Adapter
- 9V Battery
- pH Buffers 4,7,10
- Operator's Manual

Setting Up - AC Operation

Only use the approved power adaptor supplied
Check that the adaptor is the correct voltage for your power supply
Plug the adaptor into the power socket at the back of the meter, then connect to the AC supply.

Battery Installation

Approximately 24 hours of continuous use is afforded by the 9V battery.
The BAT flag appears on the display to indicate a low battery.
To install or replace the battery, slide off the back cover
Remove the old battery and insert a new one ensuring that the polarity is correct
Replace back cover.

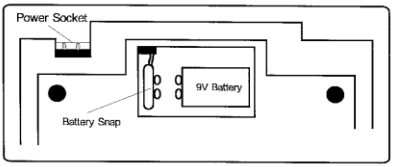


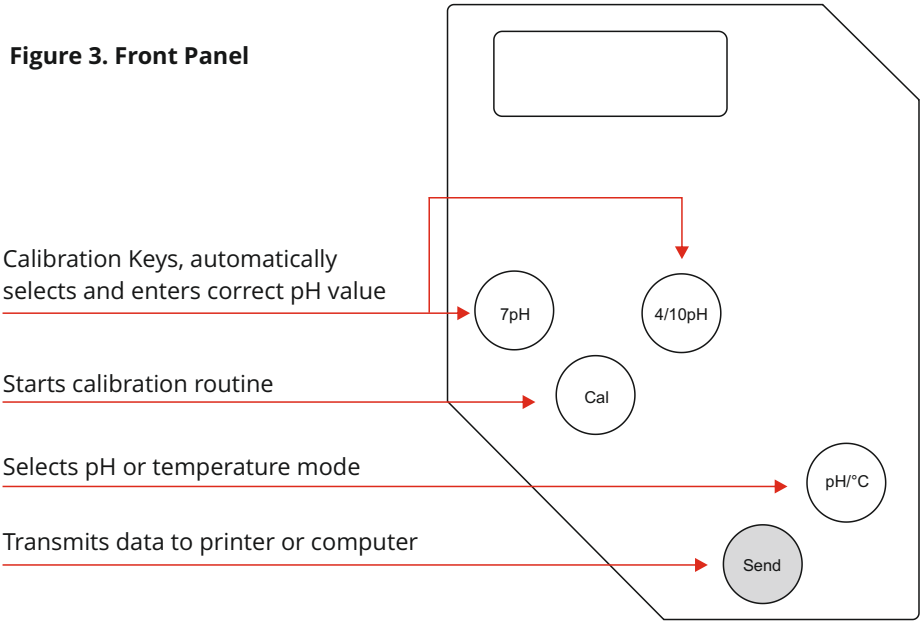
Figure 1. Bottom view of instrument showing power connections

Figure 2. Rear view of QC355(Tx)

A Note on Electrodes

pH, Ion Selective and Redox electrodes may all be used with the QC355. These may be combination or half-cell types. Combination or sensing half-cells should have a BNC terminal and be connected to the socket marked pH/ION input at the back of the meter. Reference half-cells should have a 4mm bunched terminal and be connected to the socket marked REF. Always refer to electrode instructions before use. See also, Appendix 1.

Figure 3. Front Panel



Section 2 - pH Calibration and Measurement

For accurate results, stir all buffers and samples. Always rinse electrodes and blot dry before transferring from one solution to another to prevent contamination. Ensure that any electrode filling holes are left uncovered during use.

Automatic Calibration & Temperature Compensation

1. Connect the pH electrode(s) and temperature probe and switch on using the power ON/OFF switch on the back panel.

2. Select pH mode by pressing the pH/°C key. Note: A flashing display indicates that the instrument is uncalibrated.

3. Place the pH electrode(s) and the temperature probe in the pH 7 buffer and wait for a stable reading. Indicated by ◄ on the display.

4. Press the CAL key– CAL flag will flash. Press the 7pH key—CAL flag will stop flashing. The first calibration point has now been entered automatically at the correct value for the temperature of measurement.

5. Rinse, blot and place electrode(s) and temperature probe in pH buffer 4 or 10. Wait for a stable reading indicated by ◄on the display.

6. Press the CAL key– CAL flag will flash. Press the 4/10pH key—CAL flag will stop flashing. The second calibration point has now been entered automatically at the correct value for the temperature of measurement.

7. pH measurements may now be made by immersing rinsed electrodes in the sample and recording the stable reading indicated by the ◄ flag.

8. To read the temperature press the pH/°C key at any time.

Section 3 - (Tx Version Only) Operation With a Printer or Computer

Printer

1. Connect a printer (set at 1200 Baud) to the meter via the RS232C port on the back panel.

2. Follow the calibration procedure given in Section 2

3. To print out a sample reading, press the Send key. The first time the key is pressed the following printout is obtained

4. Pressing and releasing the Send key subsequently will result in a printout of the displayed reading and temperature only.

5. To obtain a printout of other parameters for the same sample, press the Mode key and then the Send key

6. To print a new identifier, press and hold down the Send key.

DATE.....

OPERATOR.....

SAMPLE.....

pH = 7.00pH T=21.7°C

Computer

Connect a computer using 1200 Baud via the RS232C port at the back of the meter. A computer program is required to receive and send characters from the computer. The current readings can be sent to the computer by pressing the Send key. Each line is terminated with a Carriage Return (CR), Line Feed (LF). All characters are ASCII printable alpha-numeric

Three commands, CA, PR and RD can be sent from the computer:

CA—Send Calibration Data

Command—CA
1 CR LF
pH = 7.06 CR LF
T = 15.8 °C CR LF
mV = -0.2mV CR LF
2 CR LF
Second calibration point

PR –Send Probe Status Data

Command—PR
Sl = 95.3% NERNST CRLF

E° = 5.2mV CR LF

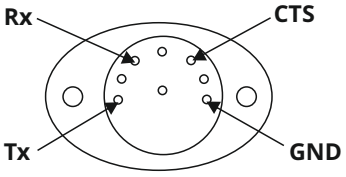
RD –Send Current Readings

Command—RD
pH = 7.00pH CR LF

T = 21.5°C CR LF

mV = 0.2mV CR LF

RS232 Connection details



Section 4 - Troubleshooting

Symptom	Probable Cause
No display	Battery is flat or not installed Power supply disconnected
'BAT' flag displayed	Battery Low
Wildly erratic readings or display reads -- on left hand side	Electrodes disconnected Electrodes not immersed in solution Reference electrode not filled Reference junction dry
Drifting readings	Inconsistent or lack of stirring Reference filling solution contaminated Buffers contaminated
Erratic/drifting readings or display reads – on left hand side when shorting plug is attached.	Return meter for servicing

Error Codes

PRO	Temperature probe malfunctioning or not connected
Buf	Wrong or Contaminated Buffer
SL	Poor Electrode Slope caused by faulty electrode or poor buffers/ standards
E°	Faulty or Aged electrode
E6, E7	Calibration error. Recalibrate with fresh standards or buffers Electrodes out of solution.

In the event of a malfunction, it is important to pinpoint the problem to either the meter or the cell. If a spare cell is available, substitute it for the one in use.

There are no user serviceable parts in this instrument. Please ensure that the instrument, together with all accessories, is returned to EDT Direct ION Ltd or the agent with a full description of the symptoms.

No attempt should be made to repair the meter.

Section 5 - Specifications

pH Range	0.00 to 14.00
pH Accuracy	±0.02pH
Temperature Compensation	0-100°C
Auto Calibration	2 points, 7 or 4/10
°C Range	-30.0 to +130.0°C
°C Resolution	0.1°C
°C Accuracy	±0.3°C
Display	12.7mm LCD
Power	9V Battery or AC
Instrument Size	210 x 150 x 88mm
Instrument Weight	550g

Appendix 1

pH electrodes

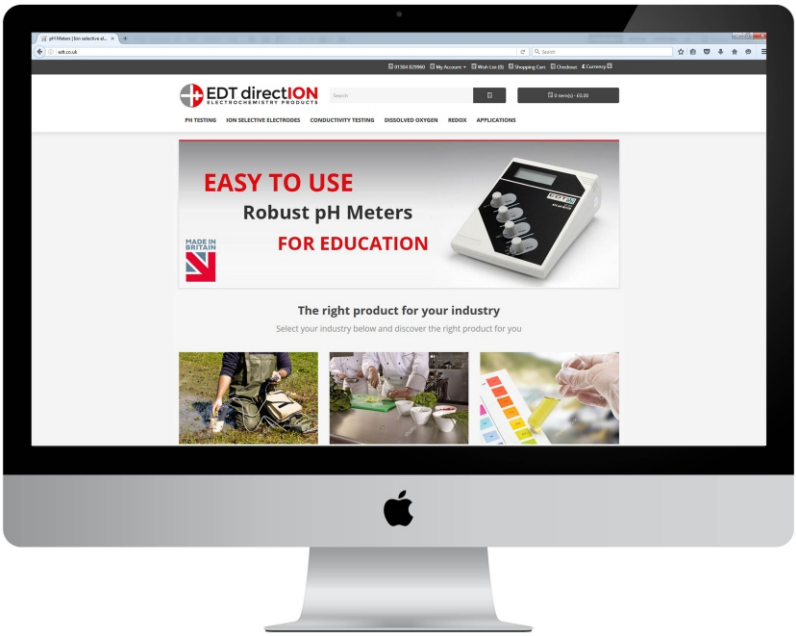
Before Use
Remove the protective cap covering the glass sensing bulb and replace with the protective guard if applicable. Inspect the filling solution for air bubbles and remove by shaking in a downward direction. Soak the electrode in pH storage solution for 30 minutes.

Cleaning
Soak the electrode in 0.1M HCl for 15 minutes followed by soaking in pH storage solution for 30 minutes

Storage.
Put some pH storage solution in the protective cap and place over the glass bulb. Never store the electrode in distilled or de-ionised water. Never allow the electrode to dry out.

pH electrode storage solution is made up by dissolving 1g KCl in 100mL of pH 7 buffer

For more information on our products please visit our website www.edt.co.uk



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