

Measure pH, conductivity, oxygen

After just a short time, the **HQD™** digital electrochemical measuring system has already established itself in practice. Both in the laboratory, with **standard electrodes**, and in the field, with rugged **outdoor electrodes**.

On the following pages, users describe their experience with the HQD system. Their experiences show that the system covers a wide range of applications, including direct measurement with long-cable outdoor electrodes in sewage treatment plants and surface waters. The simple handling of the meter and the electrodes is also rated very highly.

Digital electrochemistry for a wide range of applications



"We have been using the HQ11D for a while now. Besides the simple handling, the digital technology was the decisive factor. With previous instruments, the contacts between the meter and the electrode always corroded. This problem no longer occurs, thanks to the HQD electrode's efficiently insulated plastic connector."

Hans Seidler, Saint-Gobain Vetrotex

What does HQD mean?

HQD stands for High Quality Digital, which means that the processing of the values measured by the electrodes is digital rather than analog.

What are the advantages of the digital technology?

All calibration data is now stored in the electrode and not, as used to be the case, in the measuring instrument.

This means that the electrode can be connected to any other HQD meter after it has been calibrated and is then immediately ready for use without being recalibrated. This is very convenient and time-saving, especially when several instruments are in use at different measurement locations.

Whatever the parameter (pH, conductivity or oxygen), the electrode is connected to the meter in the same way, and the meter automatically recognizes it (Intellical™ electrode).

Intuitive operation

The menu-guided, operator interface makes using the instrument self-explanatory. Even users with no experience of the instrument can easily obtain precise and reliable pH, conductivity and oxygen readings with the HQD system.

Up to 500 readings can be stored in the instrument and subsequently transferred to a printer or a PC.

Calibration of the HQD electrodes is equally simple and reliable using the Hach® buffer and standard solutions for pH and conductivity. The ready-to-use solutions are available in a variety of concentrations, package sizes and package types, including 500 mL bottles for frequent use, and 25 mL Singlet™ pouches.





Fig. 1: HQD meter and basic functions (schematic).

Rugged outdoor electrodes for on-site measurements

The rugged stainless steel outdoor electrodes are extremely practical for on-site analysis. Thanks to the digital technology, they can be used with cables up to 30 meters long (even for pH measurements!). This eliminates the problems of inaccessible measurement locations and the weighted rugged probe can easily be immersed. The waterproof electrodes are impact resistant and provide reliable results even over long distances.



Tips for using outdoor electrodes:

- Wear gloves.
- Take dry cloths with you to wipe the probe after use, as there is usually no water available for rinsing.

How do users rate working with the HQD system?

For practical experience with the HQD system, who better to report on this than the users themselves?

Here are some comments from participants at recent Hach electrochemistry seminars:

"I think it is good that the keyboard has such a clear layout and the operation of the meter is so easy to pick up.

"The user manual is hardly ever needed after just a brief familiarisation period."

"It's great that the meter has such a large memory and the data can be transferred to a PC. I don't need any paper, which always gets wet anyway, when I am in the field."

"With the outdoor electrodes and the different cable lengths, I can take readings directly at all measurement locations."

"It's excellent that the meter shows the individual work steps during calibration."

"The reading stabilizes more quickly than when the old analogue electrodes were used."

"At last I don't have to carry out polarisation or calibration in order to measure oxygen. Also, less maintenance is needed and the electrodes suffer less wear."

"With my HQ40D multi I can connect two additional electrodes at the same time and read both values simultaneously."

"We use our HQ30D to measure oxygen (LDO). With the 15-meter-long cable and the rugged outdoor electrode we can access all the measurement locations without difficulty. Besides occasionally checking our process probes, we use the HQD system primarily for measurements, such as the determination of LDO at a variety of points and depths in the aeration tanks. We are especially happy with the rapid stabilisation of the reading and the fast availability of the result."

Angelika Meske
Wastewater Association,
Biology Laboratory





Fig. 2: The outdoor electrode is designed to function under the toughest conditions.

Special characteristics of the HQD system

Did you know that...

- Oxygen measurement with an HQD meter is of course carried out using the proven drift-free LDO method? This means fast response times, stable results without prior calibration and no time consuming changes of the electrolyte and membrane?
- The user menu of the HQD meter can be selected from 10 different languages!
- The HQD meter displays a stabilisation bar to indicate the progress of the measurement!
- The user can set the frequency and quality of the calibration to suit the measurement situation!
- The Intellical electrodes automatically remind the user when a new calibration is necessary!
- The HQD meter has a control standard programme with which the Intellical electrode can be easily checked before each measurement!



Fig. 3: HQ30D with standard and outdoor electrodes

	Portable meters				Benchtop meters		
Parameter	**HQ11D**	**HQ14D**	**HQ30D**	**HQ40D**	**HQ411D**	**HQ430D**	**HQ440D**
pH	•		•	•	•	•	•
Conductivity, TDS, salinity, resistivity		•	•	•		•	•
Dissolved Oxygen (LDO)			•	•		•	•
ISE			•	•		•	•
ORP/Redox potential	•		•	•	•	•	•
Inputs for Intellical probes	1	1	1	2	1	1	2
Casing IP Rating	IP67				IP54		
Dimensions (H×W×D), weight	36 mm × 95 mm × 197 mm 323 g (without batteries)				86 mm × 175 mm × 234 mm 850 g		

Detailed technical specifications, electrodes for additional parameters, buffer solutions and accessories are available. Please visit our website or give us a call.

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