



Applications

- Drinking water
- Waste water
- Industrial water
- Quality control

Digital electrochemistry

pH, Conductivity, DO, ISE, ORP, Fluoride, Nitrate, Ammonia, Chloride

Have confidence in your results!

High quality digital lab instruments deliver accurate measuring results with the aid of intelligent electrodes: Digital INTELLICAL electrodes always measure correctly due to their integrated calibration. INTELLICAL electrodes are recognised automatically and are interchangeable. This principle of mix + match provides reliability and flexibility across the HQD range.

Optimised handling

HQD lab instruments are easy to use thanks to the intuitive user interface. Measuring intervals can be defined by the user. Progress of stabilisation is automatically indicated on the display and readings are automatically logged.

Reliable O₂ results with minimum effort

Luminescence based LDO technology is an established HACH LANGE innovation launched in 2003.

The INTELLICAL LDO is a drift-free sensor providing error-free and accurate results at high and low O₂ concentrations with minimum effort. There is no calibration and no replacement of electrolyte. Since it was launched, LDO has proved itself everywhere where O₂ is measured!

User friendly

Large illuminated graphic displays are easy to read, even in difficult light conditions. The key pads are icon based and immediately understandable.

User interface and operating instructions are available in more than 10 European languages.

Fully GLP compliant communication and documentation

All the necessary information about each reading is automatically saved. A USB port is integrated into the instruments. PC, printer and keyboard can be connected with all read and write functions.

**LANGE**

HQD lab instruments: HQ411D, HQ430D, HQ440D

Key features

Power

115/230 V with universal Power Adapter Kit; optional/ backup power: 4 AA batteries

Languages of user interface

English, French, German, Italian, Spanish, Danish, Dutch, Polish, Portuguese, Turkish, Swedish, Czech, Russian

Data memory

500 results

Data storage

GLP/ISO compliant reading data stored with calibration details. Calibration details are documented in data log. Automatic storage in 'press to read' mode and interval mode. Manual storage in 'continuous read' mode.

Outputs

Integrated USB type A (USB flash memory device, printer, keyboard); integrated USB type B (PC)

Data export

Download via USB connection to PC or flash stick. Automatic transfer of entire data log or per reading.

Communication

Direct to PC (Bi-directional) via USB virtual serial port

Temperature compensation

Automatic (parameter dependent), off, manual

Automatic buffer recognition

pH: Colour-coded: 4.01, 7.00, 10.01
IUPAC: 1.679, 4.005, 7.000, 10.012, 12.45
DIN: 1.09, 4.65, 9.23; user defined custom buffer sets IUPAC standards (DIN 19266) or technical buffer (DIN 19267) or 4-7-10 series or customer defined

Conductivity: Demal (1D / 0.1D / 0.01D);

Molar (0.1M / 0.01M / 0.001M);

NaCl (0.05%; 25 μ S/cm; 1000 μ S/cm; 18 mS/cm);

Standard sea water; user defined

Keyboard

External PC keyboard via USB connection

Protection class

Meter casing: spray water resistant and dust resistant (IP54)

Dimensions

86 mm \times 175 mm \times 235 mm

Weight

850 g

Warranty

3 years

Subject to change without notice.

Order information

Digital lab meters

HQ411D.98.00002: One channel pH meter

HQ430D.98.00002: One channel multi meter

HQ440D.98.00002: Two channel multi meter

Digital lab meters with probe holder

HQ411D.98.00012: One channel pH meter with probe holder

HQ430D.98.00012: One channel multi meter with probe holder

HQ440D.98.00012: Two channel multi meter with probe holder



HQD lab instruments: HQ411D, HQ430D, HQ440D

Technical data

| | HQ411D | HQ430D | HQ440D |
|-------------------------------------|-------------------------------------|--|--|
| Digital electrodes inputs | 1 | 1 | 2 |
| DO range | | 0.00 to 20.0 mg/L DO | 0.00 to 20.0 mg/L DO |
| DO resolution | | 0.01 mg/L or 0.1% DO saturation | 0.01 mg/L or 0.1% DO saturation |
| DO accuracy | | ±1% of measurement range | ±1% of measurement range |
| Pressure compensation | | Automatic | Automatic |
| pH range | 0 to 14 pH | 0 to 14 pH | 0 to 14 pH |
| pH resolution | Selectable between 0.001 and 0.1 pH | Selectable between 0.001 and 0.1 pH | Selectable between 0.001 and 0.1 pH |
| pH accuracy | ±0.002 pH | ±0.002 pH | ±0.002 pH |
| ORP range | -1,500 to 1,500 mV | -1,500 to 1,500 mV | -1,500 to 1,500 mV |
| ORP resolution | 0.1 mV | 0.1 mV | 0.1 mV |
| ORP accuracy | 0.1 mV | 0.1 mV | 0.1 mV |
| ISE range | | Depending on probe | Depending on probe |
| ISE resolution | | 5 digits max.; 0.1/0.01/0.001 | 5 digits max.; 0.1/0.01/0.001 |
| ISE accuracy | | ±0.1 mV | ±0.1 mV |
| Temperature range | -10 to 110 °C | -10 to 110 °C | -10 to 110 °C |
| Temperature resolution | 0.1 °C | 0.1 °C | 0.1 °C |
| Temperature accuracy | ±0.3 °C | ±0.3 °C | ±0.3 °C |
| Conductivity range | | 0.01 µS/cm to 200 mS/cm | 0.01 µS/cm to 200 mS/cm |
| Conductivity resolution | | 5 digits with 2 digits after decimal point | 5 digits with 2 digits after decimal point |
| Conductivity accuracy | | ±0.5% in 1 µS/cm to 200 mS/cm range | ±0.5% in 1 µS/cm to 200 mS/cm range |
| Conductivity temperature correction | | Non linear (natural waters DIN 38404 + EN ISO 7888 or NaCl), linear coefficient, no compensation | Non linear (natural waters DIN 38404 + EN ISO 7888 or NaCl), linear coefficient, no compensation |
| Resistivity range | | 2.5 Ωcm to 49 MΩcm | 2.5 Ωcm to 49 MΩcm |
| Resistivity resolution | | 5 digits max. | 5 digits max. |
| Resistivity accuracy | | ±0.5% | ±0.5% |
| TDS range | | 0.0 to 50.0 g/L | 0.0 to 50.0 g/L |
| TDS resolution | | 3 digits max. | 3 digits max. |
| TDS accuracy | | ±0.5% of measurement range | ±0.5% of measurement range |
| Salinity range | | 0 to 42 (g/kg, ppt, no unit) | 0 to 42 (g/kg, ppt, no unit) |
| Salinity resolution | | 0.01 ppt | 0.01 ppt |
| Salinity accuracy | | ±0.1 mg/L for range <8 mg/L | ±0.1 mg/L for range <8 mg/L |

Subject to change without notice.

HQD lab instruments: HQ411D, HQ430D, HQ440D

INTELLICAL: Digital electrodes with built-in temperature sensor

| Parameter | Product description | Cable length | Article number | Cable length | Article number |
|------------------------------|--|--------------|----------------|--------------|----------------|
| pH | pH combination gel electrode, low maintenance | 1 m | PHC10101 | 3 m | PHC10103 |
| | pH combination refillable electrode | 1 m | PHC30101 | 3 m | PHC30103 |
| | pH combination refillable electrode for low ionic strength | 1 m | PHC28101 | 3 m | PHC28103 |
| Conductivity | Conductivity 4 pole cell, graphite | 1 m | CDC40101 | 3 m | CDC40103 |
| LDO | Luminescent DO sensor | 1 m | LDO10101 | 3 m | LDO10103 |
| LBOD | Luminescent BOD sensor | 1 m | LBOD10101 | 3 m | - |
| ORP | ORP Gel electrode, low maintenance | 1 m | MTC10101 | 3 m | MTC10103 |
| | ORP Refillable electrode | 1 m | MTC30101 | 3 m | MTC30103 |
| F ⁻ | Fluoride combination ion selective electrode | 1 m | ISEF12101 | 3 m | ISEF12103 |
| NO ₃ ⁻ | Nitrate combination ion selective electrode | 1 m | ISEN0318101 | 3 m | ISEN0318103 |
| Na ⁺ | Sodium combination ion selective refillable electrode | 1 m | ISENA38101 | 3 m | ISENA38103 |
| NH ₃ | Ammonia combination gas-sensing electrode with refillable outer body | 1 m | ISENH318101 | 3 m | ISENH318103 |
| NH ₄ ⁺ | Ammonium combination ion selective electrode | 1 m | ISENH418101 | 3 m | ISENH418103 |
| Cl ⁻ | Chloride combination ion selective electrode | 1 m | ISECL18101 | 3 m | ISECL18103 |

pH buffer and conductivity standard solutions

| Article number | Product description | |
|----------------|--|--|
| S11M001 | IUPAC pH Standard, pH 1.679 | Certified buffer solution, traceable to certified reference materials (CRM). The unopened standard is stable for 4 years (2 years for pH 12.45). Each bottle (500 mL) is supplied with a DKD Verification Certificate and Certificate of Conformity and Traceability drawn up according to ISO 31. |
| S11M002 | IUPAC pH Standard, pH 4.005 | |
| S11M004 | IUPAC pH Standard, pH 7.000 | |
| S11M007 | IUPAC pH Standard, pH 10.012 | |
| S11M008 | IUPAC pH Standard, pH 12.45 | |
| S51M001 | IUPAC conductivity standard KCl 1 D, 111.3 mS/cm | Certified conductivity standard according to IUPAC, with certificate. Each bottle (500 mL) is supplied with a DKD Verification Certificate and Certificate of Conformity and Traceability drawn up according to ISO 31. |
| S51M002 | IUPAC conductivity standard KCl 0.1 D, 12.85 mS/cm | |
| S51M003 | IUPAC conductivity standard KCl 0.01 D, 1408 µS/cm | |
| S51M004 | IUPAC conductivity standard NaCl 0.05%, 1015 µS/cm | |
| S51M013 | IUPAC conductivity standard NaCl 25, 25 µS/cm | |



Small selection of our standard solutions.

The use of standards manufactured by an accredited laboratory gives you confidence in the traceability chain and calculated uncertainties.

