



## HD 2305.0 PORTABLE pHMETER

The **HD2305.0** is a portable instrument with a large LCD display. It measures the pH and the redox potential (ORP) in mV. It measures the temperature using Pt100 or Pt1000 immersion, penetration or contact probes.

The electrode calibration can be carried out on one, two or three points at 4.01pH, 6.86pH and 9.18pH.

The temperature probes are equipped with an automatic recognition module and factory calibration data are stored inside.

The Max, Min and Avg function calculate the maximum, minimum or average values.

Other functions include: the relative measurement REL, the Auto-HOLD function, and the automatic turning off that can also be excluded.

**The instruments have IP67 protection degree.**



HD8642

HD8672

HD8692

### INSTRUMENT TECHNICAL CHARACTERISTICS

Measured quantities: pH, mV, °C, °F

#### Instrument

|                                      |   |
|--------------------------------------|---|
| Dimensions (Length x Width x Height) | 140x88x38mm                                       |
| Weight                               | 160g (complete with batteries)                    |
| Materials                            | ABS   |
| Display                              | 2x4½ digits plus symbols<br>Visible area: 52x42mm |

#### Working conditions

|                           |                                |
|---------------------------|--------------------------------|
| Operating temperature     | -5...50°C                      |
| Storage temperature       | -25...65°C                     |
| Working relative humidity | 0...90%RH without condensation |

**Protection degree IP67**

#### Power

|                                    |   |
|------------------------------------|---|
| Batteries                          | 3 1.5V type AA batteries                  |
| Autonomy                           | 200 hours with 1800mAh alkaline batteries |
| Power absorbed with instrument off | 20µA                                      |

#### Connections

|   |                                |
|---|--------------------------------|
| Input module for the temperature probes | 8-pole male DIN45326 connector |
| pH/mV input                             | Female BNC                     |

#### Measurement of pH by Instrument

|                         |  |
|-------------------------|--|
| Measurement range       | -2.000...+19.999pH   |
| Resolution              | 0.01   |
| Accuracy                | ±0.01pH±1 digit  |
| Input impedance         | >10 <sup>12</sup> Ω  |
| Calibration error @25°C | lOffsetl>20mV<br>Slope<50mV/pH or Slope>63mV/pH<br>Sensitivity < 85% or Sensitivity > 106.5% |

#### Measurement of mV by Instrument

|                    |                      |
|--------------------|----------------------|
| Measurement range  | -1999.9...+1,999.9mV |
| Resolution         | 0.1mV                |
| Accuracy           | ±0.1mV               |
| Drift after 1 year | 0.5mV/year           |

#### Measurement of temperature by Instrument

|                          |               |
|--------------------------|---------------|
| Pt100 measurement range  | -200...+650°C |
| Pt1000 measurement range | -200...+650°C |
| Resolution               | 0.1°C         |
| Accuracy                 | ±0.1°C        |
| Drift after 1 year       | 0.1°C/year    |

### TECHNICAL DATA OF PROBES AND MODULES EQUIPPED WITH INSTRUMENT

#### Temperature probes Pt100 sensor using SICRAM module

| Model     | Type        | Application range | Accuracy   |
|-----------|-------------|-------------------|--|
| TP87      | Immersion   | -50°C...+200°C    | ±0.25°C (-50°C...+200°C)                             |
| TP472I.0  | Immersion   | -50°C...+400°C    | ±0.25°C (-50°C...+350°C)<br>±0.4°C (+350°C...+400°C) |
| TP473P.0  | Penetration | -50°C...+400°C    | ±0.25°C (-50°C...+350°C)<br>±0.4°C (+350°C...+400°C) |
| TP474C.0  | Contact     | -50°C...+400°C    | ±0.3°C (-50°C...+350°C)<br>±0.4°C (+350°C...+400°C)  |
| TP475A.0  | Air         | -50°C...+250°C    | ±0.3°C (-50°C...+250°C)                              |
| TP472I.5  | Immersion   | -50°C...+400°C    | ±0.3°C (-50°C...+350°C)<br>±0.4°C (+350°C...+400°C)  |
| TP472I.10 | Immersion   | -50°C...+400°C    | ±0.3°C (-50°C...+350°C)<br>±0.4°C (+350°C...+400°C)  |

Temperature drift @ 20°C 0.003%/°C

#### 4 wire Pt100 and 2 wire Pt1000 Probes

| Model     | Type           | Application range | Accuracy |
|-----------|----------------|-------------------|----------|
| TP87.100  | Pt100 4 wires  | -50...+200°C      | Class A  |
| TP87.1000 | Pt1000 2 wires | -50...+200°C      | Class A  |

Temperature drift @ 20°C 0.005%/°C

## ORDER CODES

**HD2305.0:** The kit is composed of: instrument HD2305.0, 3 1.5V alkaline batteries, operating manual, case.

**HD22.2:** Laboratory electrode holder composed of base plate with built-in magnetic stirrer, shaft and replaceable electrode holder. Suitable diameter 12mm. Powered by power supplier SWD10 (optional).

**HD22.3:** Laboratory electrode holder composed of base plate. Flexible arm for free positioning. Suitable for electrodes with diameter 12mm.

### pH Electrodes

**KP 20:** Gel pH filled combined electrode for general use, with S7 screw connector, EPOXY body.

**KP 30:** Gel pH combined electrode for general use, 1m cable with BNC, EPOXY body.

**KP 50:** Gel pH combined electrode, porous Teflon ring junction, suitable for emulsions, demineralised water, with S7 screw connector, glass body.

**KP 61:** 3 diaphragm liquid filled pH combined electrode for wine, milk, cream, etc., S7 screw connector, liquid reference filling, glass body.

**KP 62:** 1 diaphragm gel pH combined electrode for pure water, varnishes, gel filled, S7 screw connector, glass body.

**KP 63:** 1 liquid filled pH combined electrode for general use, varnishes, 1m cable with BNC, glass body.

**KP 64:** Liquid filled pH combined electrode, Teflon ring diaphragm, for wine, varnishes, emulsions, S7 screw connector, glass body.

**KP 70:** Pointed gel combined pH microelectrode diam. 6 x L=70 mm., with S7 screw connector, EPOXY body, glass tip, open junction.

**KP 80:** Pointed gel pH combined electrode, with S7 screw connector, glass body, for cream, milk, viscous material, open junction.

**KP100:** Flat membrane gel combined pH electrode with S7 screw connector, glass body, for skin, leather, paper.

### Characteristics and dimensions of the probes at page 401

**CP:** 1.5m extension cable with BNC/S7 connector for electrode without cable, thread S7.

**CP 5:** 5m extension cable with BNC/S7 connector for electrode without cable, thread S7.

**CP 10:** 10m extension cable with BNC/S7 connector for electrode without cable, thread S7.

**CP 15:** 15m extension cable with BNC/S7 connector for electrode without cable, thread S7.

**CE:** S7 screw connector for pH electrode.

**BNC:** female BNC for extension cable

### ORP Electrodes

**KP 90:** REDOX PLATINUM liquid filled electrode with S7 screw connector, glass body.

**KP 91:** Gel REDOX PLATINUM electrode, 1m cable with BNC, EPOXY body

**Characteristics and dimensions of the probes at page 402**

### pH Buffer solutions

**HD8642:** Buffer solution 4.01pH - 200cc.

**HD8672:** Buffer solution 6.86pH - 200cc.

**HD8692:** Buffer solution 9.18pH - 200cc.

### Redox Buffer solutions

**HDR220:** Redox buffer solution 220mV 0.5 l.

**HDR468:** Redox buffer solution 468mV 0.5 l.

### Electrolyte solutions

**KCL3M** Ready to use solution for electrode refilling - 100 cc

### Cleaning and maintenance

**HD62PT:** Diaphragm cleaning (thiourea in HCl) - 500ml.

**HD62PP:** Protein cleaning (pepsin in HCl) - 500ml.

**HD62RF:** Regeneration (fl uorhydric acid) - 100ml.

**HD62SC:** Solution for electrode preservation - 200ml.

### Temperature probes complete with SICRAM module

**TP87:** Pt100 sensor immersion probe. Stem  $\varnothing$  3 mm, length 70 mm. Cable length 1 m.

**TP4721.0:** Pt100 sensor immersion probe. Stem  $\varnothing$  3 mm, length 230 mm. Cable length 2 m.

**TP473P.0:** Pt100 sensor penetration probe. Stem  $\varnothing$  4mm, length 150 mm. Cable length 2 m.

**TP474C.0:** Pt100 sensor contact probe. Stem  $\varnothing$  4mm, length 230mm, contact surface  $\varnothing$  5mm. Cable length 2 m.

**TP475A.0:** Air probe, sensor Pt100. Stem  $\varnothing$  4mm, length 230mm. Cable length 2 m.

**TP4721.5:** Immersion probe, sensor Pt100. Stem  $\varnothing$  6mm, length 500 mm. Cable length 2 m.

**TP4721.10:** Immersion probe, sensor Pt100. Stem  $\varnothing$  6mm, length 1,000mm. Cable length 2 m.

### Temperature probes without SICRAM module

**TP47.100:** Direct 4 wires Pt100 sensor immersion probe. Probe's stem  $\varnothing$  3mm, length 230mm. Connection cable 4 wires with connector, length 2 m.

**TP47.1000:** Pt1000 sensor immersion probe. Probe's stem  $\varnothing$  3mm, length 230mm. Connection cable 2 wires with connector, length 2 m.

**TP87.100:** Pt100 sensor immersion probe. Probe's stem  $\varnothing$  3mm, length 70mm. 4 wire connection cable with connector, length 1 m.

**TP87.1000:** Pt1000 sensor immersion probe. Probe's stem  $\varnothing$  3mm, length 70mm. 2-wire connection cable with connector, length 1 m.

**TP47:** Module for the connection of Pt100 4-wire and Pt1000 2-wire probes.

