Bench Top Combined pH, Cond., TDS, Resistivity, Salinity & Temp. Meter

Model : HD3456.2

Specification :

Measured Values

	pH, mV, χ, Ω, TDS, Salinity, °C, °F

Storage of Measured Values

Type	2000 pages of 10 samples each
Quantity	20,000 terns of measures made up of [pH, mV], [χ, or Ω, or TDS or Salinity] & Temperature

Measurement Connections

pH/mV input	Female BNC connector
Conductivity input	8-pole male DIN45326 connector
Input for Temp. Probes with TP47 Modules	8-pole male DIN45326 connector

Measurement of pH by Instrument

Measurement Range	–2.000.....+19.999pH
Resolution	0.01~0.001pH selectable from menu
Accuracy	±0.001pH ± 1 digit
Input impedance	>10^{12}W
Calibration error @25°C	|Offset|>20mV Slope > 63mV/pH or Slope < 50mV/pH Sensitivity > 106.5% or Sensitivity < 85%

Measurement of mV by Instrument

Measurement Range	–1999.9...+1999.9mV
Resolution	0.1mV
Accuracy	±0.1mV ±1 digit
Drift after 1 year	0.5mV/year

Standard solutions automatically detected (@25°C)

1.679pH-2.000pH-4.000pH-4.008pH-4.010pH
6.860pH-6.865pH-7.000pH-7.413pH-7.648pH
9.180pH-9.210pH-10pH

Measurement of Conductivity by Instrument

Measurement range (Kcell=0.01)/Res.	0.000...1.999µS/cm / 0.001µS/cm
Measurement range (Kcell=0.1)/Res.	0.00...19.99µS/cm / 0.01µS/cm
Measurement range (Kcell=1)/Res.	0.0...199.9µS/cm / 0.1µS/cm 200.1999µS/cm / 1µS/cm 2.00...19.99mS/cm / 0.01mS/cm 20.0...199.9mS/cm / 1mS/cm
Measurement Range (Kcell=10) Res.	200...1999mS/cm / 1mS/cm
Accuracy (conductivity)	±0.5% ±1 digit

Measurement of Resistivity by Instrument

Measurement range (Kcell=0.01)/Res.	Up to 1GΩ.cm / (*)
Measurement range (Kcell=0.1)/Res.	Up to 100MΩ · cm / (*)
Measurement range (Kcell=1)/Res.	5.0...199.9Ω · cm / 0.1Ω · cm 200...999Ω · cm / 1Ω · cm 1.00k...19.99kΩ · cm / 0.01kΩ · cm 20.0k...99.9kΩ · cm / 0.1kΩ · cm 100k..999kΩ · cm / 1kΩ · cm 1...10MΩ · cm / 1MΩ · cm
Measurement (Kcell=10) Res.	0.5...5.0Ω · cm / 0.1Ω · cm
Accuracy (Resistivity)	±0.5% ±1digit

Measurement of total Dissolved Solids (with coefficient χ/TDS=0.5)

Measurement range (Kcell=0.01)/Res.	0.00...1.999mg/l / 0.005mg/l
Measurement range (Kcell=0.1)/Res.	0.00...19.99mg/l / 0.05mg/l
Measurement range (Kcell=1)/Res.	0.0...199.9 mg/l / 0.5mg/l 200...1999 mg/l / 1 mg/l 2.00...19.99 g/l / 0.01g/l 20.0...99.9 g/l / 0.1 g/l
Measurement range (Kcell=10) Res.	100...999 g/l / 1 g/l
Accuracy (Total Dissolved Solids)	±0.5% ±1digit

Measurement of Salinity

Measurement range / Resolution	0.000...1.999g/l / 1mg/l 2.00...19.99g/l / 10mg/l 20.0...199.9g/l / 0.1g/l
Accuracy (Salinity)	±0.5% ±1digit

Measurement of Temperature by Instrument

Measurement range Pt-100	-50...+200°C
Measurement range Pt-1000	-50...+200°C
Resolution	0.1°C
Accuracy	±0.25°C
Drift after 1 Year	0.1°C / year

Automatic / Manual Temp. Compensation

Reference Temp.	0...100°C with α_T that can be selected from 0.00...4...00%/°C 20°C or 25°C selectable from menu
Conversion factor χ / TDS	0.4....0.8
Cell constant K (cm^{-1})	0.01 - 0.1 - 0.7 - 1.0 - 10.0

Standard solutions Automatically Detected (@25° C)

147 µS/cm
1413 µS/cm
12880 µS/cm
111800 µS/cm

HTA INSTRUMENTATION (P) LTD.,
An ISO 9001: 2015 Certified Company & NABL Accredited Calibration Laboratory as per ISO/IEC 17025:2017
Your One Stop For Instrumentation Supply, Automation & Calibration
73, Ramachandra Agrahara, Near T.R. Mills, Chamarajpet, Bangalore - 560018, INDIA.
Phone : 080-26749750, 26759253, 26740681 E-mail : sales@htaipl.com Website : www.htaipl.com
ISO 9001:2015 CERTIFIED
Certificate No. IQSC202010014

Specification

Technical Characteristics	HD3456.2
Display	2×4½ characters plus symbols. Visible area : 52×42mm
Measured Values	pH, mV, χ, Ω, TDS, NaCl, °C, °F
Measuring Range	–2.000...+19.999pH; –1999.9...+1999.9mV; 0.0...199.9mS/cm; 5.0Ω...10MΩ.cm; 0.0...99.9g/l; NaCl=0.000...199.9g/l; –50...+200°C
Maximum Resolution	0.01pH-0.001pH; 0.1mV; 0.1µS/cm; 0.1 Ω.cm; TDS = 0.5 mg/l; NaCl = 1 mg/l; 0.1°C
Accuracy Instrument	±0.001pH ±1digit; ±0.1mV ±1digit; ±0.5% ±1digit for χ, Ω, TDS, NaCl; ±0.1°C ± 1 digit
Body	ABS, Rubber
Cell constant K (cm^{-1})	0.01 - 0.1 - 0.7 - 1.0 - 10.0 (Configurable)
Conversion factor χ/TDS	0.4....0.8
Electronics Operating Conditions	T = -5.....50°C; 0....90%RH no condensate
Protection Degree	IP 66
Power Supply	3 batteries Type 1.5V AA - Mains adapter 12Vdc/1A (cod. SWD10)
Storage Interval	1s, 5s, 10s, 15s, 30s, 1min, 2min, 5min, 10min 15min, 20min, 30min & 1 hour
Printing Interval	Immediate or 1s, 5s, 10s, 15s, 30s, 1min, 2min, 5min, 10min 15min, 20min, 30min and 1 hour
Data Interface	RS232C and USB2.0 electrically isolated
Automatically Detected Standard Solutions	1.679pH/2.000pH/4.000pH/4.008pH/4.010pH/6.860pH/6.865pH/7.000pH/ 7.413pH/7.648pH/9.180pH/9.210pH/10.010pH/147µS-cm/1413µS-cm/ 12880µS-cm/111800µS-cm
Dimensions (L×W×H)	220 × 120 × 55mm
Weight	460g (complete with batteries)

pH Electrodes for HD3405.2 and HD3456.2

ORDERING CODE	MEASUREMENT RANGE AND USE
KP20	0....14pH/0...80°C/3 bar Body in Epoxy - GEL filled 1 ceramic diaphragm Waste Water, Drinking Water, Paints, Water Emulsions, Galvanic Baths, Fruit Juices, Water Suspensions, Titration, Varnishes.
KP30	0....14pH/0...80°C/3 bar Body in Epoxy - GEL filled 1 ceramic diaphragm Cable L = 1 m with BNC Waste Water, Drinking Water, Water Emulsions, Galvanic Baths, Paints, Varnishes, Water Suspensions, Fruit Juices, Titration.
KP50	0....14pH/0...80°C/3 bar Body in Glass - GEL filled 1 Teflon ring diaphragm Varnishes, Cosmetics, Water Emulsions, Galvanic Baths, Creams, Deionised Water, TRIS Solutions, Drinking Water, Fruit Juices, Low-ion-content Solutions, Mayonnaise, Preserved Food, Paints, Titration, Titration in non-water Solutions, Water suspensions, Detergents, Waste Water, Viscous Samples.
KP61	2...14pH / 0...80°C / 3bar Body in Glass Liquid reference filling Triple ceramic diaphragm Waste Water, Paste, Bread, Fruit Juices, Varnishes, Cosmetics, Creams, Deionised Water, Drinking Water, Water Emulsions, Galvanic Baths, Detergents, Yoghurt, Milk, Titration, Preserved Food, Titration in non-water Solutions, Water Suspensions, Mayonnaise, Wine, Low ion-content Solution, Butter, Proteic Substances, Paints, Viscous Samples.

ORDERING CODE	MEASUREMENT RANGE AND USE
KP62	0...14pH / 0...80°C / 1bar Body in Glass - GEL filled 1 ceramic diaphragm Paints, Varnishes, Drinking Water, Water Emulsions, Fruit Juices, Galvanic Baths, Water Suspensions, Titration, Waste Water.
KP63	0...14pH / 0...80°C / 1bar Body in Glass Reference filling solution KCl 3M 1 ceramic diaphragm Cable L = 1m with BNC Paints, Varnishes, Drinking Water, Water Solutions, Fruit Juices, Galvanic Baths, Water Suspensions, Titration, Waste Water.
KP64	0....14pH / 0...80°C / 0.1 bar Body in glass Liquid reference KCl 3M Teflon collar diaphragm Paints, Varnishes, Cosmetics, Creams, Deionised Water, Drinking Water, Water Emulsions, Fruit Juices, Detergents, Low ion-content Solutions, Preserved food, Water Suspensions, Titration, Titration in non-water Solutions, TRIS Solutions, Waste Water, Viscous Samples, Wine.
KP70	2....14pH / 0...50°C / 0.1 bar Body in Epoxy - GEL filled 1 open Junction Paste, Bread, Paints, Varnishes, Cosmetics, Creams, Drinking Water, Water Emulsions, Fruit Juices, Galvanic Baths, Detergents, Mayonnaise, Preserved Foods, Cheese, Milk, Water Suspensions, Viscous Samples, Waste Water, Butter, Yoghurt.

ORDERING CODE	MEASUREMENT RANGE AND USE
KP80	2....14pH / 0...60°C / 1 bar Body in glass - GEL filled 1 open Junction Paste, Bread, Paints, Varnishes, Cosmetics, Creams, Drinking Water, Water Emulsions, Fruit Juices, Galvanic Baths, Detergents, Mayonnaise, Preserved Foods, Water Suspensions, Titration, Titration in non-water Solutions, Viscous Samples, Waste Water, Yoghurt, Milk Butter.

Redox Electrodes for HD3405.2 and HD3456.2

ORDERING CODE	MEASUREMENT RANGE AND USE
KP90	± 2000mV 0....80°C 5 bar Body in glass Reference filling solution KCl 3M General use
KP91	± 1000mV 0....60°C 1 bar Body in Epoxy - GEL Cable L = 1m with BNC General use No heavy tasks

2 & 4 Electrodes Cond. Probes for HD3406.2 & HD3456.2

ORDERING CODE	MEASUREMENT RANGE AND USE
SP06T	K=0.7 5µS/cm....200mS/cm 0....90°C 4-electrode cell; in Pocan / Platinum Probe material Pocan General use; No heavy tasks
SPT401.001	K=0.01 0.04µS/cm....20mS/cm 0....120°C 2-electrode cell in AISI 316 Ultrapure Water Measurement in closed-cell
SPT01G	K=0.1 0.1µS/cm....500mS/cm 0....80°C 2-electrode cell in Platinum-wire Probe material Glass Pure Water
SPT1G	K=1 10µS/cm....10mS/cm 0....80°C 2-electrode cell in Platinum-wire Probe material Glass General heavy use average conductivity
SPT10G	K=10 500µS/cm....200mS/cm 0....80°C 2-electrode cell in Platinum-wire Probe material Glass General heavy use high conductivity

ORDER CODES :

Accessories for Instruments HD3406.2 with input for Conductivity Measurement

- Combined conductivity and Temperature Probes

SP06T	Combined conductivity and Temperature 4-electrode cell in Platinum, body in Pocan. Cell constant K = 0.7. Measurement range 5 µS/cm...20mS/cm, 0...90°C.
SPT401.001	combined conductivity and Temperature 2-electrode cell in stainless steel AISI 316. Cell constant K = 0.01. Measurement range 0.04 µS/cm, ...20µS / cm, 0....120°C. Measurement in closed - cell...
SPT01G	Combined conductivity and Temperature 2-electrode Platinum-wire cell, body in glass. Cell constant K = 0.1 Measurement range 0.1µS/cm...500µS/cm, 0...80°C.
SPT1G	Combined conductivity and Temperature 2-electrode Platinum-wire cell, body in glass. Cell constant K = 1. Measurement range 10µS/cm...10mS/cm, 0...80°C.
SPT10G	Combined conductivity and Temperature 2-electrode Platinum-wire Cell, body in glass cell constant K=10. Measurement range 500µS/cm....200mS/cm, 0...80°C.

- Common Accessories for instruments Series HD34....

HD2110CSNM	8-pole connection cable Mini Din - Bus D 9-pole female for RS232C, for connection to PC without USB input.
HD2101/USB	Connection cable USB 2.0 connector type A - 8-pole Mini Din for connection to PC with USB input.
SWD10	Stabilized power supply at 230Vac/9Vdc-300mA mains voltage.
S'print-BT	Portable, Serial input, 24 column thermal printer, 58mm paper width.
HD2110CSP	Connection Cable for instruments series HD34... to printer S'print-BT
HD22.2	Laboratory electrode holder composed of basis plate with incorporated magnetic stirrer, staff and replaceable electrode holder. Height max. 380mm.
HD22.3	Laboratory electrode holder with metal basis plate. Flexible electrode holder for free positioning. For ø12mm probes.
TP47	Module for the connection of Pt100 4-wire and Pt1000 2-wire probes to instrument series HD34...without amplifying electronics and linezrization.

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