

LAQUA



| | | | |
|-------------|------------------------|----------|--------------|
| pH | ORP | Ion | Conductivity |
| Resistivity | Total Dissolved Solids | Salinity | |

Benchtop Water Quality Instruments
Colour Touchscreen Meters



www.horiba-laqua.com



LAQUA

Benchtop Water Quality Instruments
Colour Touchscreen Meters

2011



LAQUA Benchtop Water Quality Instruments

2012



LAQUAtwin Pocket Water Quality Meters

2013



LAQUA Handheld Water Quality Instruments

2003



F-50 (desktop) The world's first pH meter with colour LCD display. Navigation panel guides operators on how to use the meter as well as resolve errors.



D-50 (portable) Waterproof, IP67-rated housing and multi-parameter.

1993



F-20 (benchtop) The world's first wireless pH meter. Large graphical display gives user instructions on screen.

1990



B-111 (Pen type) The pen type sensor allows small samples to be tested.

1987



C-1 (card) Development of the world's first flat sensor.

1980



Model F-80 (benchtop) The world's first instrument capable of measuring pH at 0.001 resolution includes an integral computer with automatic calibration and a self-diagnostic function.

L-7 (integrated) Introduction of a small, handheld pH meter with integrated electrode.



1977



Model F-7AD (benchtop) Incorporating an industry-first LCD display, the combination of a glass electrode, a reference electrode and a temperature-compensating electrode, makes testing easier.

1964



M-5 (benchtop) conversion from vacuum tube to semiconductor allows miniaturization and development of fast response meter

1950

HORIBA introduces Japan's first glass electrode pH meter.



History of the HORIBA pH Meter

The humble beginning of HORIBA...

In 1950, Dr. Masao Horiba pioneered and launched Asia's first pH meter in Kyoto, Japan. Since then, HORIBA has been introducing several of the world's firsts such as the first 0.001 resolution pH meter, the first flat sensor featured in the Cardy, the first wireless pH meter, the first colour LCD display, etc.

Touchscreen Precision. The New Benchmark.



- Large touch screen color graphic LCD—5.7 inches (115.2 x 86.4 mm)
- Chemical-resistant, 2mm thick super white glass panel with protection cover
- Easy to clean and elegant round body
- GLP / GMP compliant
- Switchable display—digital, graph, and analog
- Effortless single-touch operations—tap, flick, and drag
- 2-Channel display and simultaneous measurements for F-73 and F-74 models
- Small footprint—170 (W) x 174 (D) x 73 (H) mm
- Data acquisition software in mini USB is included
- 21 CFR Part 11 software complies with U.S. FDA's system requirements for electronic records and signatures (optional)



Protection Cover



Data Acquisition Software



21 CFR Part 11 Software

LAQUA

Benchtop Water Quality Instruments
Colour Touchscreen Meters

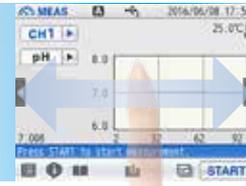
Intuitive Touch-Control Operation

Digital



Tap

Graph

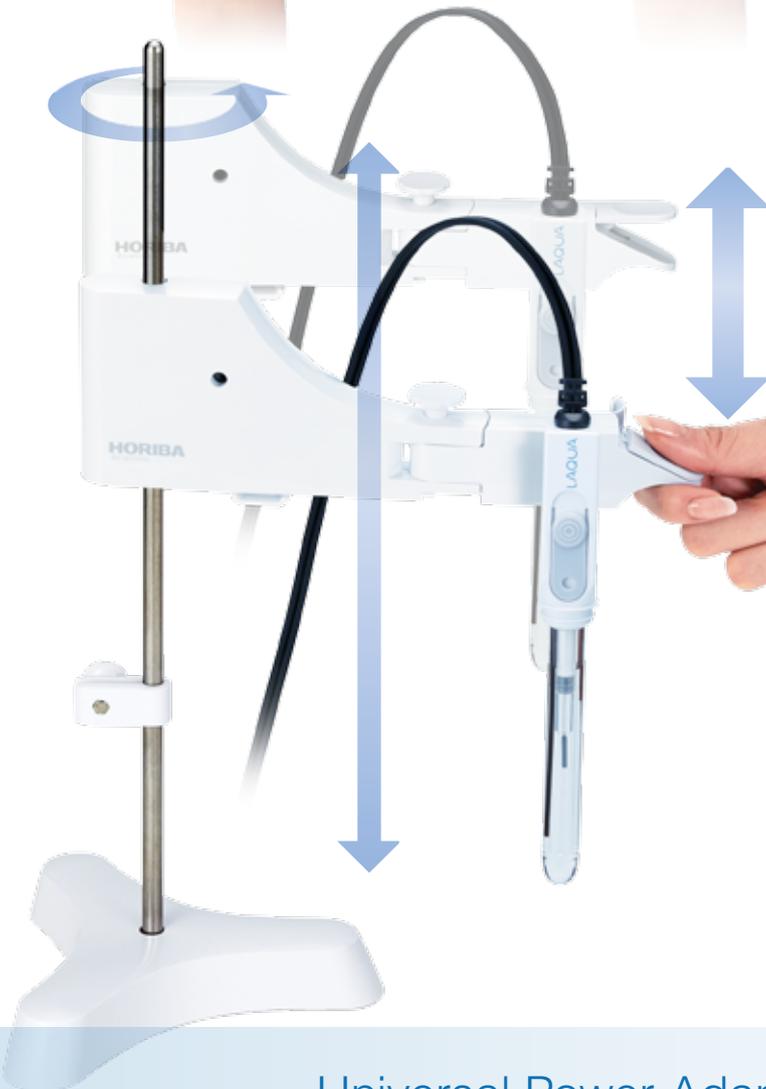


Flick

Analog



Drag



360° Electrode Stand Maneuverability

- Each meter comes with standard (Height: 384mm) electrode stand with arm
- Electrode stand arm holds up to 3 electrodes
- Taller electrode stand (Height: 650mm) with telescopic shaft is also available
- Arm level is adjusted by pressing and holding down the clip end while moving it up or down the shaft
- Stopper controls vertical slide of the electrode stand arm
- Arm rotates 360° so beakers can be conveniently positioned anywhere around the stand

Universal Power Adapter

- Multi-voltage (100-240V)
- 6 types of international standard plugs included (US, UK, EU, Australia / New Zealand, Korea and China)



Data Management

Data Key



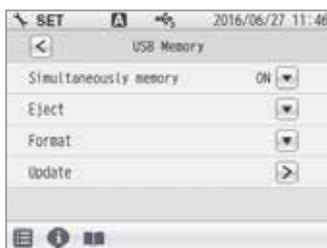
- Data key shows settings that allow users to search, view, delete, and copy data from meter to USB flash drive

Sample ID



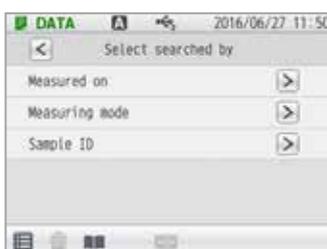
- Meter internal memory stores up to 2000 data with sample ID for easy reference

Data Storage



- Data can be stored simultaneously on both meter and USB flash drive (if inserted)
- Calibration and measurement data are logged automatically at set time interval

Data Search

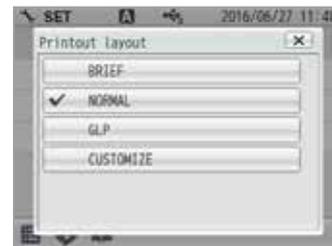


- Data search by date, parameter, or sample ID



- Data output via USB to PC / USB flash drive or via RS232C to PC / printer (cables sold separately)
- Analog output adjustment—voltage output can be acquired from digital multimeter or recorder connected to the analog output connector

Custom Printout



- Auto or manual printing of calibration and measurement values for record keeping
- Printout contents can be customized based on user preference or GMP/GLP requirements—date and time, operator, electrode and meter information, electrode status, and calibration data

Meter Security



- Password setting for security
- Up to 25 administrators or operators can be registered

Intelligent Assistant

Provides step-by-step guidance on calibration, sample measurement, application methods, maintenance, inspection and troubleshooting

SMART



Calibration Support Function

Enjoy hassle-free calibration with on screen support. The meter will walk you through the steps of calibration.

- Auto Buffer Recognition
- Auto Calibration Function



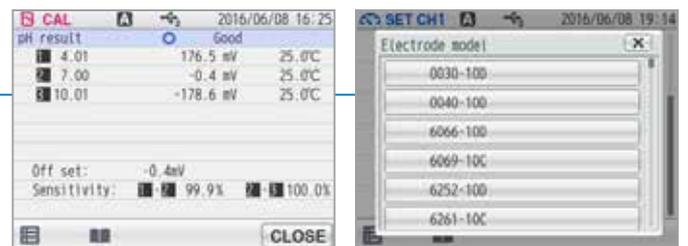
Reading Stability Check

- Perform proper calibration with stable readings
- Determine the stability of reading at a glance in either digital or graph display during pH and ion calibration
- Stability value is a deviation between the maximum and minimum readings in the last 10 seconds



Electrode Status

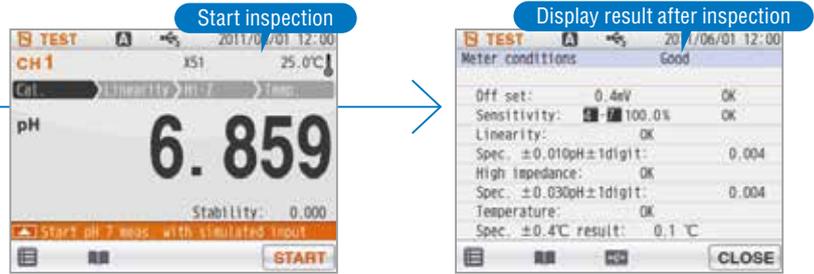
- Electrode condition and results such as calibrated values, offset, acid and alkaline slopes, are shown at the end of calibration
- Programmable calibration reminder and alarm for measured values exceeding set limits
- Temperature indicator  appears when a temperature probe or electrode with integrated temperature sensor is connected to the meter
- Temperature sensor calibration function
- Electrode model, either selected from preset list or entered manually, and lot or MFG no. (entered manually) are included in stored data and printouts



Inspection Function

Easy navigation for meter and electrode inspections using a simulator. Various industrial standards (JIS, USP, EP, JP, CP) are also supported.

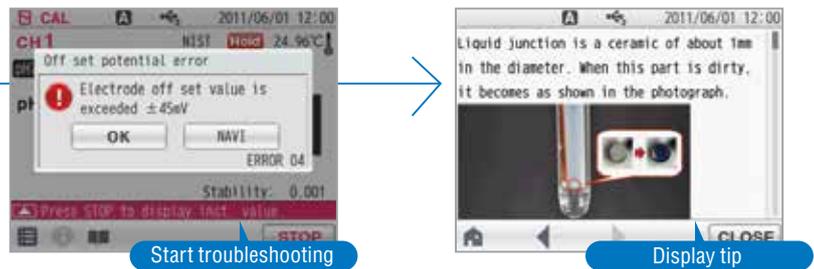
- Convenient for IQ / OQ / PQ validation



NAVIGATION

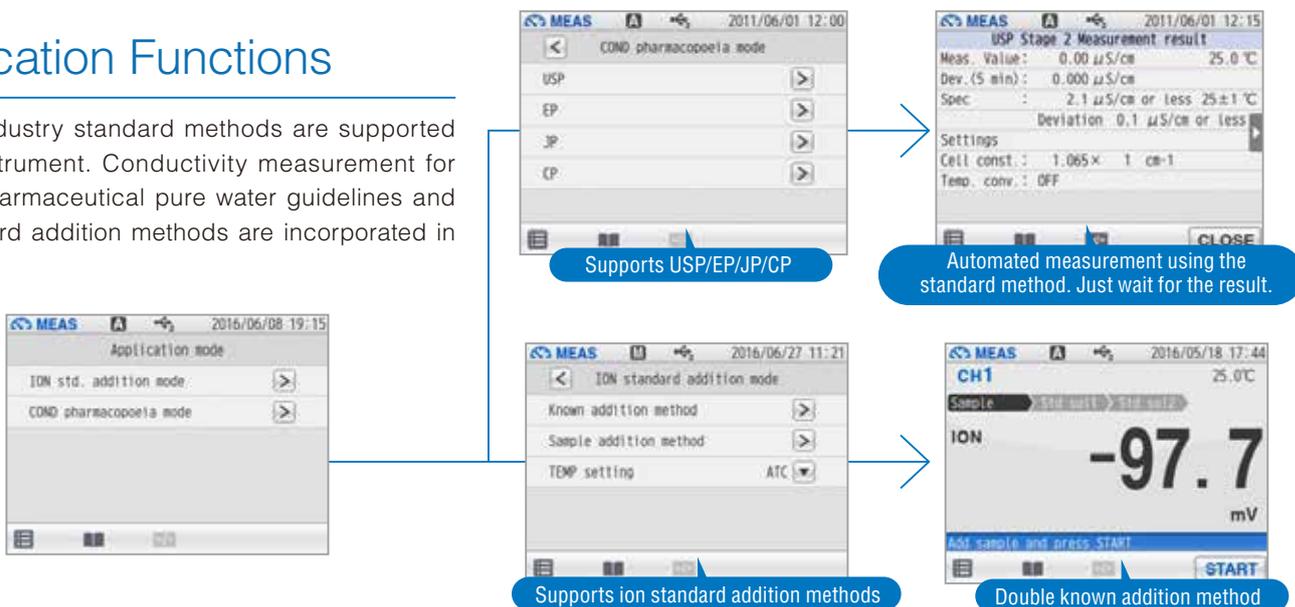
Troubleshooting Function

On-screen support for resolving a problem that occurs during calibration or sample measurements. A user's guide is incorporated in the software to assist with any operational difficulties.



Application Functions

Various industry standard methods are supported by the instrument. Conductivity measurement for several pharmaceutical pure water guidelines and ion standard addition methods are incorporated in the meter.

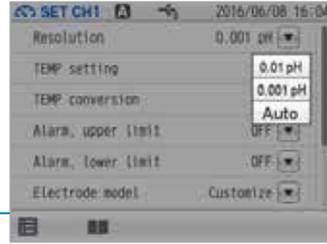


LAQUA

Benchtop Water Quality Instruments
Colour Touchscreen Meters

pH

- 5 pH buffer groups
 - USA (1.68, 4.01, 7.00, 10.01, 12.45)
 - NIST (1.68, 4.01, 6.86, 9.18, 12.45)
 - NIST2 (1.68, 4.01, 6.86, 10.01, 12.45)
 - China (1.68, 4.01, 6.86, 9.18, 12.46)
 - Custom (any pH buffers)
- Up to 5 calibration points
- 0.01 and 0.001 pH Resolutions
- Auto setting allows the meter to toggle between 0.01 and 0.001 resolution depending on the stability of the reading
- Auto calibration / Auto buffer recognition



mV

- Display absolute potential and relative potential



ADVANCED

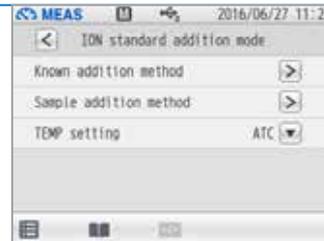
ORP

- Capable of 1-point calibration



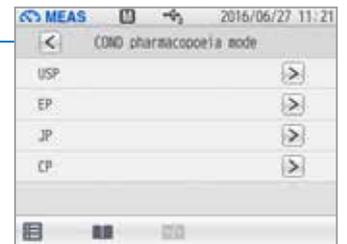
Ion

- Make your own calibration curve with maximum of 5 points or perform standard addition techniques
- Programmed with standard addition methods—known addition and sample addition (single and double are available for both methods)
- Measurement units - µg/L, mg/L, g/L, mmol/L, mol/L



Conductivity

- Automatic / manual calibration up to 4 points
- Adjustable temperature coefficient and reference temperature for temperature compensated readings
- Selectable cell constants – 0.1, 1.0, 10.0
- Auto ranging S/cm and S/m units, fix mS/cm unit
- Support conductivity standard methods for pharmaceutical water—USP, EP, JP and CP



Total Dissolved Solids (TDS)

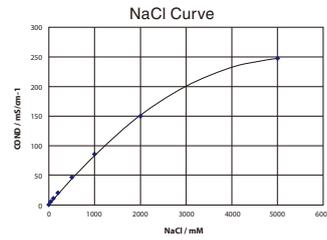
- Programmed with 4 predetermined TDS curves for accurate measurement—Linear, EN27888, 442, and NaCl
- Select the TDS curve suitable for your application
- Calibration only in conductivity mode is required

TDS Calibration Curves

| Application | Key chemical species | TDS selection |
|-----------------------|---|---|
| Aquaculture, pickling | NaCl | NaCl |
| Boiler water, HVAC | Na ₂ SO ₄ , NaHCO ₃ , NaCl | 442 (Myron) |
| Environmental | EN standard for environmental water | EN 27888 |
| General application | Not known | KCl (linear factor) Default: 0.5 Selectable: 0.4 to 1.0 |

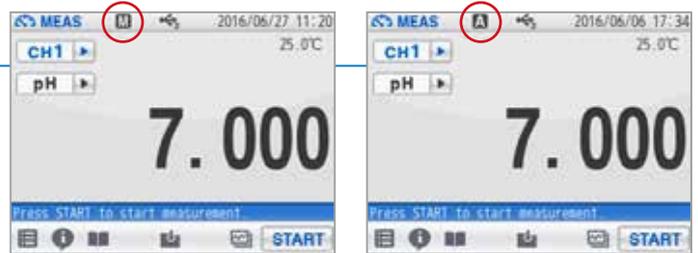
Salinity

- Programmed with 2 predetermined salinity curves—NaCl and seawater
- Salinity value is calculated based on measured conductivity value
- 1-point calibration using standard solution
- Measurement units—percentage (%) and parts per thousand (ppt)



Auto Stable / Auto Hold

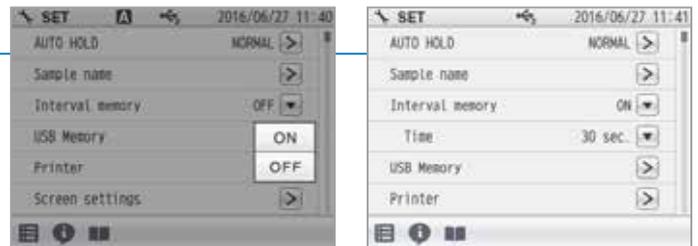
- In measurement mode, the meter displays live readings continuously
- Activate auto hold by tapping START
- Auto hold settings—Exact, Normal, Brief, Time, Customize, and Manual



FEATURES

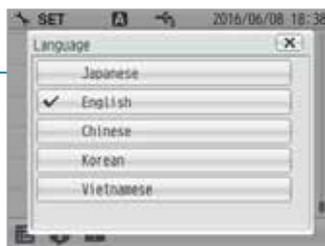
Auto Log Data

- Log data automatically by setting time interval from 1 to 999 seconds



Multi-Language

- Choose a language that you are familiar with—English, Japanese, Chinese, Korean, and Vietnamese



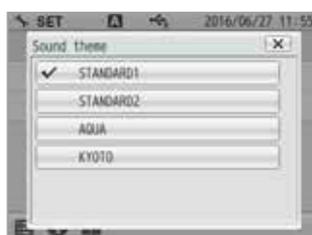
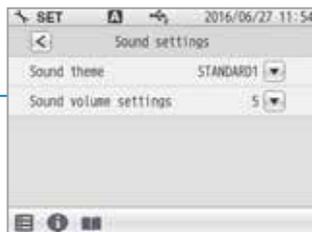
Screen Settings

- Set stylish theme on your meter screen—Standard, Cool, Monotone, and Kyoto
- Power saving mode—turns off the backlight to save power



Sound Setting

- Play a click sound every time you tap a key





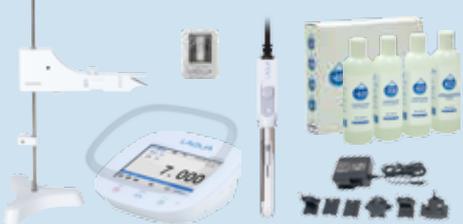
F-72
Single Channel

F-73
Dual Channel

Features:

- Up to 5 calibration points for pH and Ion
- 5 pH buffer groups – USA, NIST, NIST2, China, and Custom
- 0.01 and 0.001 pH resolutions
- pH calibration interval setting – 1 to 999 days
- 1-point ORP calibration
- Ion calibration curve and standard addition methods
- Temperature sensor calibration function
- Single channel for F-72 and dual channel display for F-73

Ordering Information:

| | | |
|--|--|--|
| Meter Kit* |  <p>F-72A-S (3999960011)</p> <ul style="list-style-type: none"> • F-72 meter • electrode stand • protection cover • power adaptor with 6 plugs • data acquisition software in USB • 9615S-10D - refillable, glass-body pH electrode with integrated temperature sensor, 1m cable, BNC & phono jack • 502-S - pH 4.01, 7.00, 10.01, 3.33M KCl solutions (250ml each) |  <p>F-73A-S (3999960012)</p> <ul style="list-style-type: none"> • F-73 meter • electrode stand • protection cover • power adaptor with 6 plugs • data acquisition software in USB • 9615S-10D - refillable, glass-body pH electrode with integrated temperature sensor, 1m cable, BNC & phono jack • 502-S - pH 4.01, 7.00, 10.01, 3.33M KCl solutions (250ml each) |
| Meter Kit with 21 CFR Part 11 Software | F-72A-S-CFR (3999960210) | F-73A-S-CFR (3999960212) |
| Meter with Electrode Stand | F-72G (3000347100) <ul style="list-style-type: none"> • F-72 meter • electrode stand • protection cover • power adaptor with 6 plugs • data acquisition software in USB | F-73G (3000347200) <ul style="list-style-type: none"> • F-73 meter • electrode stand • protection cover • power adaptor with 6 plugs • data acquisition software in USB |
| pH Electrode | 9615S-10D (3200585428) <ul style="list-style-type: none"> • refillable, glass-body pH electrode with integrated temperature sensor, 1m cable, BNC & phono jack | 9615S-10D (3200585428) <ul style="list-style-type: none"> • refillable, glass-body pH electrode with integrated temperature sensor, 1m cable, BNC & phono jack |
| USA pH Buffer Set | 502-S (3999960016) <ul style="list-style-type: none"> • pH 4.01, 7.00, 10.01, 3.33M KCl solutions (250ml each) | 502-S (3999960016) <ul style="list-style-type: none"> • pH 4.01, 7.00, 10.01, 3.33M KCl solutions (250ml each) |
| NIST pH Buffer Set | 501-S (3999960015) <ul style="list-style-type: none"> • pH 4.01, 6.86, 9.18, 3.33M KCl solutions (250ml each) | 501-S (3999960015) <ul style="list-style-type: none"> • pH 4.01, 6.86, 9.18, 3.33M KCl solutions (250ml each) |

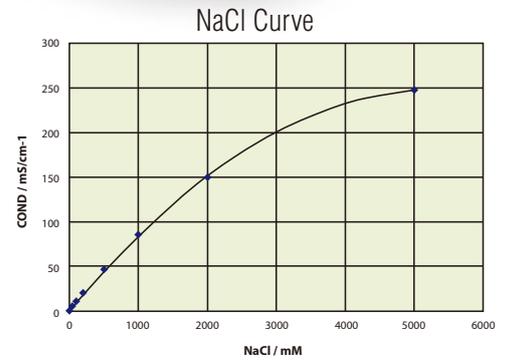
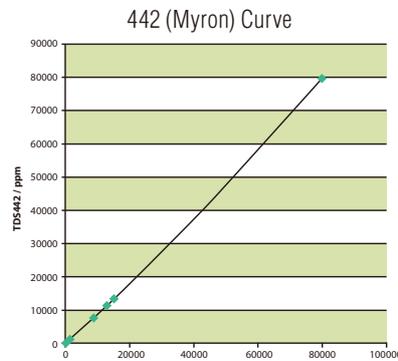
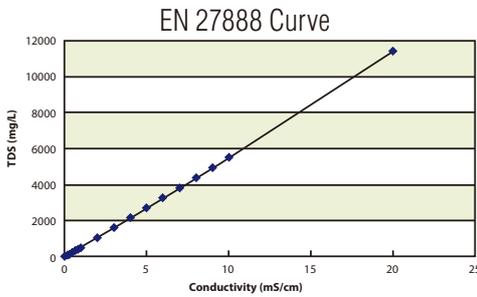
*Kit with 501-S is available upon request. Add 'N' suffix to the order code when ordering.

| Model | F-72 pH/ORP/Ion/Temp (°C) | F-73 Dual Channel pH/ORP/Ion/Temp (°C) |
|-------------------------|---|---|
| pH Range | -2.000 to 20.000 pH | -2.000 to 20.000 pH |
| Resolution | 0.01 / 0.001 pH | 0.01 / 0.001 pH |
| Accuracy | ± 0.001 pH | ± 0.001 pH |
| Calibration Points | Up to 5 | Up to 5 |
| Buffer Options | USA, NIST, NIST2, China, Custom | USA, NIST, NIST2, China, Custom |
| ORP Range | ± 1999.9 mV | ± 1999.9 mV |
| Resolution | 0.1 mV | 0.1 mV |
| Accuracy | ±0.2 mV | ±0.2 mV |
| Ion Range | 0.000 µg/L to 9999 g/L (mol/L) | 0.000 µg/L to 9999 g/L (mol/L) |
| Resolution | 4 significant digits | 4 significant digits |
| Accuracy | ± 0.3% of full scale | ± 0.3% of full scale |
| Calibration Points | Up to 5 | Up to 5 |
| Temperature Range | -30.0 °C to 130.0 °C | -30.0 °C to 130.0 °C |
| Resolution | 0.1 °C | 0.1 °C |
| Accuracy | ±0.4°C | ±0.4°C |
| Calibration Option | Yes | Yes |
| Navigation Function | Yes | Yes |
| Memory | 2000 | 2000 |
| Auto Data-Logging | Yes | Yes |
| Data Search | Yes | Yes |
| Custom Printing | Yes | Yes |
| Real Time Clock | Yes | Yes |
| Date / Time Stamp | Yes | Yes |
| Sample ID Input | Yes | Yes |
| Operator ID Input | Yes | Yes |
| Password Setting | Yes | Yes |
| Auto Stable / Auto Hold | Yes | Yes |
| Offset / Slope Display | Yes (independent acid and alkaline slopes depending on calibration) | Yes (independent acid and alkaline slopes depending on calibration) |
| Calibration Alarm Limit | Yes | Yes |
| Electrode Status | On screen display | On screen display |
| Diagnostic Messages | Yes | Yes |
| Display | Touch screen color graphic LCD | Touch screen color graphic LCD |
| Languages | English / Japanese / Chinese / Korean / Vietnamese | English / Japanese / Chinese / Korean / Vietnamese |
| Inputs | BNC, phono, DC socket | Dual BNC, dual phono, DC socket |
| Outputs | USB, RS232C, analog output | USB, RS232C, analog output |
| Power Requirements | AC adaptor 100 ~ 240V, 50/60 Hz | AC adaptor 100 ~ 240V, 50/60 Hz |
| Electrode Stand | Stand alone | Stand alone |
| Weight | 700g | 700g |
| Dimensions | 170 (W) x 174 (D) x 73 (H) mm | 170 (W) x 174 (D) x 73 (H) mm |

Features:

- Wide conductivity range
- Automatic / manual conductivity calibration
- Up to 4 calibration points
- Adjustable temperature coefficient, reference temperature, and cell constant
- Temperature sensor calibration function
- Auto ranging S/cm and S/m and fix mS/cm conductivity units
- Parts per thousand (ppt) and percentage (%) salinity units
- NaCl and seawater salinity curves
- 4 Total dissolved solids (TDS) curves – EN27888, Linear, NaCl, 442

DS-72 Single Channel



Ordering Information:

| | |
|---|---|
| <p>Meter Kit</p> | <p>DS-72A-S (3999960013)</p> <ul style="list-style-type: none"> • DS-72 meter • electrode stand • protection cover • power adaptor with 6 plugs • data acquisition software in USB • 3552-10D - Platinum/Platinum black, glass-body k=1.0 conductivity cell with integrated temperature sensor, 1m cable, BNC & phono jack • 503-S - 84µS/cm, 1413µS/cm, 12.88mS/cm & 111.8mS/cm conductivity standard solutions (250ml each) |
| <p>Meter Kit with 21 CFR Part 11 Software</p> | <p>DS-72A-S-CFR (3999960216)</p> |
| <p>Meter with Electrode Stand</p> | <p>DS-72G (3000347600)</p> <ul style="list-style-type: none"> • DS-72 meter • electrode stand • protection cover • power adaptor with 6 plugs • data acquisition software in USB |
| <p>Conductivity Cell</p> | <p>3552-10D (3014081545)</p> <ul style="list-style-type: none"> • Platinum/Platinum black, glass-body k=1.0 conductivity cell with integrated temperature sensor, 1m cable, BNC & phono jack |
| <p>Conductivity Standard Solutions Set</p> | <p>503-S (3999960017)</p> <ul style="list-style-type: none"> • 84µS/cm, 1413µS/cm, 12.88mS/cm & 111.8mS/cm conductivity standard solutions (250ml each) |

| Model | DS-72 EC/TDS/Res/Sal/Temp (°C) |
|-------------------------|---|
| EC Range | 0.000 µS/cm to 19.99 mS/cm (k=0.1) 0.00 µS/cm to 199.9 mS/cm (k=1.0) 0.0 µS/cm to 1.999 S/cm (k=10.0) |
| Resolution | 0.05% of full scale |
| Accuracy | ±0.6% of full scale (±1.5% full scale > 18.0 mS/cm) |
| Reference Temperature | 15 to 30°C (adjustable) |
| Temperature Coefficient | 0.00 to 10.00% (adjustable) |
| Cell Constants | 0.1 / 1.0 / 10.0 |
| Calibration Points | 4 (Auto / Manual) |
| Measurement Units | Auto-Ranging / Manual S/cm, S/m, Fix (mS/cm) |
| TDS Range | 0.01 mg/L to 1000 g/L |
| Resolution | 0.01 mg/L |
| Accuracy | ±0.1% of full scale |
| TDS Curves | EN27888, Linear (0.40 to 1.0), 442, NaCl |
| Resistivity Range | 0.00 kΩ.cm to 199.9 MΩ•cm (k=0.1) 0.000 kΩ.cm to 19.99 MΩ•cm (k=1.0) 0.0 Ω.cm to 1.999 MΩ•cm (k=10.0) |
| Resolution | 0.05% of full scale |
| Accuracy | ±0.6% of full scale (±1.5% full scale > 1.80 MΩ•cm) |
| Salinity Range | 0.00 to 80.00 ppt / 0.000 to 8.000% |
| Resolution | 0.01 ppt / 0.001% |
| Accuracy | 0.2% of full scale |
| Salinity Curves | NaCl / Seawater |
| Temperature Range | -30.0 °C to 130.0 °C |
| Resolution | 0.1 °C |
| Accuracy | ± 0.4 °C |
| Navigation Function | Yes |
| Memory | 2000 |
| Auto Data-Logging | Yes |
| Data Search | Yes |
| Custom Printing | Yes |
| Real Time Clock | Yes |
| Date / Time Stamp | Yes |
| Sample ID Input | Yes |
| Operator ID Input | Yes |
| Password Setting | Yes |
| Auto Stable / Auto Hold | Yes |
| Diagnostic Messages | Yes |
| Display | Touch screen color graphic LCD |
| Languages | English / Japanese / Chinese / Korean / Vietnamese |
| Inputs | BNC, phono, DC socket |
| Outputs | USB, RS232C, analog output |
| Power Requirements | AC adaptor 100~240V, 50/60 Hz |
| Electrode Stand | Stand alone |
| Weight | 700g |
| Dimensions | 170 (W) x 174 (D) x 73 (H) mm |

Features:

- Combine the functions of F-72 and DS-72 models
- Dual channel and simultaneous measurements
 - Channel 1: pH, Ion, mV, ORP
 - Channel 2: Conductivity, Salinity, Resistivity and TDS
- Switchable single or dual channel display

F-74
Dual Channel



Channel 1: pH



Channel 2: Conductivity



Dual Channel

Ordering Information:

| | |
|---|---|
| <p>Meter Kit*</p> |  <p>F-74A-S (3999960014)</p> <ul style="list-style-type: none"> • F-74 meter • electrode stand • protection cover • power adaptor with 6 plugs • data acquisition software in USB • 9615S-10D - refillable, glass-body pH electrode with integrated temperature sensor, 1m cable, BNC & phono jack • 3552-10D - Platinum/Platinum black, glass-body k=1.0 conductivity cell with integrated temperature sensor, 1m cable, BNC & phono jack • 502-S - pH 4.01, 7.00, 10.01, 3.33M KCl solutions (250ml each) • 503-S - 84µS/cm, 1413µS/cm, 12.88mS/cm & 111.8mS/cm conductivity standard solutions (250ml each) |
| <p>Meter Kit with 21 CFR Part 11 Software</p> | <p>F-74A-S-CFR (3999960214)</p> |
| <p>Meter with Electrode Stand</p> | <p>F-74G (3000347400)</p> <ul style="list-style-type: none"> • F-74 meter • electrode stand • protection cover • power adaptor with 6 plugs • data acquisition software in USB |
| <p>pH Electrode</p> | <p>9615S-10D (3200585428)</p> <ul style="list-style-type: none"> • refillable, glass-body pH electrode with integrated temperature sensor, 1m cable, BNC & phono jack |
| <p>Conductivity Cell</p> | <p>3552-10D (3014081545)</p> <ul style="list-style-type: none"> • Platinum/Platinum black, glass-body k=1.0 conductivity cell with integrated temperature sensor, 1m cable, BNC & phono jack |
| <p>USA pH Buffer Set</p> | <p>502-S (3999960016)</p> <ul style="list-style-type: none"> • pH 4.01, 7.00, 10.01, 3.33M KCl solutions (250ml each) |
| <p>NIST pH Buffer Set</p> | <p>501-S (3999960015)</p> <ul style="list-style-type: none"> • pH 4.01, 6.86, 9.18, 3.33M KCl solutions (250ml each) |
| <p>Conductivity Standard Solutions Set</p> | <p>503-S (3999960017)</p> <ul style="list-style-type: none"> • 84µS/cm, 1413µS/cm, 12.88mS/cm & 111.8mS/cm conductivity standard solutions (250ml each) |

*Kit with 501-S is available upon request. Add 'N' suffix to the order code when ordering.

| F-74 | |
|---|---|
| Dual Channel pH/ORP/Ion/EC/TDS/Res/Sal/Temp (°C) | |
| Models | |
| pH Range | -2.000 to 20.000 pH |
| Resolution | 0.01 / 0.001 pH |
| Accuracy | ± 0.001 pH |
| Calibration Points | Up to 5 |
| Buffer Options | USA, NIST, NIST2, China, Custom |
| ORP Range | ± 1999.9 mV |
| Resolution | 0.1 mV |
| Accuracy | ± 0.2 mV |
| Ion Range | 0.000 µg/L to 9999 g/L (mol/L) |
| Resolution | 4 significant digits |
| Accuracy | ± 0.3% of full scale |
| Calibration Points | Up to 5 |
| EC Range | 0.000 µS/cm to 19.99 mS/cm (k=0.1) 0.00 µS/cm to 199.9 mS/cm (k=1.0) 0.0 µS/cm to 1.999 S/cm (k=10.0) |
| Resolution | 0.05% of full scale |
| Accuracy | ±0.6% of full scale (±1.5% full scale > 18.0 mS/cm) |
| Reference Temperature | 15 to 30°C (adjustable) |
| Temperature Coefficient | 0.00 to 10.00% (adjustable) |
| Cell Constants | 0.1 / 1.0 / 10.0 |
| Calibration Points | 4 (Auto / Manual) |
| Measurement Units | Auto Ranging / Manual S/cm, S/m, Fix (mS/cm) |
| TDS Range | 0.01 mg/L to 1000 g/L |
| Resolution | 0.01 mg/L |
| Accuracy | ±0.1% of full scale |
| TDS Curves | EN27888, Linear (0.40 to 1.0), 442, NaCl |
| Resistivity Range | 0.00 kΩ.cm to 199.9 MΩ.cm (k=0.1) 0.000 kΩ.cm to 19.99 MΩ.cm (k=1.0) 0.0 Ω.cm to 1.999 MΩ.cm (k=10.0) |
| Resolution | 0.05% of full scale |
| Accuracy | ±0.6% of full scale (±1.5% full scale > 1.80 MΩ.cm) |
| Salinity Range | 0.00 to 80.00 ppt / 0.000 to 8.000 % |
| Resolution | 0.01 ppt / 0.001% |
| Accuracy | 0.2% of full scale |
| Salinity Curves | NaCl / Seawater |
| Temperature Range | -30.0 °C to 130.0 °C |
| Resolution | 0.1 °C |
| Accuracy | ± 0.4 °C |
| Navigation Function | Yes |
| Memory | 2000 |
| Auto Data-Logging | Yes |
| Data Search | Yes |
| Custom Printing | Yes |
| Real Time Clock | Yes |
| Date / Time Stamp | Yes |
| Sample ID Input | Yes |
| Operator ID Input | Yes |
| Password Setting | Yes |
| Auto Stable / Auto Hold | Yes |
| Offset / Slope Display | Yes (independent acid and alkaline slopes depending on calibration) |
| Calibration Alarm Limit | Yes |
| Electrode Status | On screen display |
| Diagnostic Messages | Yes |
| Display | Touch screen color graphic LCD / dual channel display |
| Languages | English / Japanese / Chinese / Korean / Vietnamese |
| Inputs | Dual BNC, dual phono, DC socket |
| Outputs | USB, RS232C, analog output |
| Power Requirements | AC adaptor 100~240V, 50/60 Hz |
| Electrode Stand | Stand alone |
| Weight | 700g |
| Dimensions | 170 (W) x 174 (D) x 73 (H) mm |

pH Electrode Selection Guide

| | | 3-in-1 ELECTRODES | | | | | | | | | | | COMBINATION ELECTRODES | | | | |
|---------------|-----------------------------------|-------------------|----------|----------|----------|----------------|------------|-------------|--------------|----------|-------------|----------|------------------------|----------------|-------------|--------------|----------|
| | | PLASTIC | | | | STANDARD ToupH | LONG ToupH | MICRO ToupH | SLEEVE ToupH | SLEEVE | NON-AQUEOUS | NEEDLE | PLASTIC | STANDARD ToupH | MICRO ToupH | SLEEVE ToupH | LONG |
| | | 9625-10D | 9630-10D | 9631-10D | 9632-10D | 9615S-10D | 9680S-10D | 9618S-10D | 9681S-10D | 6367-10D | 6377-10D | 6252-10D | 9425-10C | 9415-10C | 9418-10C | 9481-10C | 6069-10C |
| Specification | Applicable temperature range (°C) | 0-100 | 0-100 | 0-60 | 0-100 | 0-100 | 0-100 | 0-60 | 0-60 | 0-60 | 0-60 | 0-100 | 0-100 | 0-60 | 0-60 | 0-60 | |
| | Diameter (mm) | 16 | 16 | 16 | 16 | 12 | 8 | 3 | 12 | 12 | 12 | 12 | 16 | 12 | 3 | 12 | 3 |
| | Length (mm) | 150 | 150 | 155 | 150 | 198 | 283 | 185 | 203 | 150 | 150 | 150 | 150 | 198 | 185 | 203 | 291 |

pH - Sample Conditions

| | | | | | | | | | | | | | | | | | |
|------------------|--|--------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aqueous Solution | Conductivity | Normal (over 100 mS/m) | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | | Low (approx. 10 -100 mS/m) | | ● | | | | | | ○ | | ● | | | | ○ | |
| | | Very low (approx. 5 -100 mS/m) | | ○ | | | | | | ○ | | ● | | | | ○ | |
| | | High (approx. 5 S/m) | ○ | ○ | ○ | ○ | ○ | ○ | | ● | | | | ○ | ○ | | ● |
| | Strong alkaline (pH 10-12) | | | | ● | ○ | ○ | | ○ | ○ | | | | ○ | | ○ | |
| | Strong acidity (pH 0-2) * Except HF sample | | | ● | | ● | | | | | | | | ● | | | |
| | Quick heat change (within 50°C) | ● | ● | ● | ● | | | | | | | | ● | | | | |
| | High viscosity (approx. 5 Pa-S) | | | | | | | | ● | ○ | ● | | | | | ● | |
| Solid/ Semisolid | Containing non-aqueous solvent | | | | | ○ | ○ | ○ | ○ | ○ | ● | | | ○ | ○ | ○ | |
| | Suspension | | | | | ○ | ○ | ○ | ● | | ● | | | ○ | ○ | ● | |
| | Inside | | | | | | | | | | | ○ | | | | | |
| Surface | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | |
|-------------------|-------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Containers | Microtube/plate (> 50 µL) | | | | | | | ● | | | | | | | ● | | |
| | Ampule > ø4 mm | | | | | | | ● | | | | | | | ● | | ○ |
| | Micro container (> 2 mL) | | | | | | ○ | ● | | | | | | | ● | | ○ |
| | Tube ID:13 mm, L:100 - 150 mm | | | | | | ● | | | | | | | | | | ● |
| | Beaker 10 mL - 1 L | ● | ● | ● | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ● | ● | ○ | ○ | ○ |
| | Large container (> 1 L) | ○ | ○ | ○ | ○ | ○ | ● | | | | | | ○ | ○ | | | |
| | Petri dish | | | | | | | | | | | | | | | | |
| | Droplet | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | |
|-----------------------------------|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|
| Water | Pure/ion-exchange water (approx. 0.1 mS/m)/ Distilled water (approx. 0.5 mS/m) | | | | | ○ | | | | | ● | | | ○ | | | |
| | Tap/drinking water (approx. 10 mS/m) | ○ | ● | | | ○ | | | ○ | | ● | | ○ | ○ | | ○ | |
| | Surface water | | ● | | | ○ | | | ○ | | ● | | ○ | ○ | | ○ | |
| | Pharmaceutical water/ Environmental water/acid rain | ○ | ○ | | | ○ | | | ○ | | ○ | | ○ | ○ | | ○ | |
| Chemical reagent/ solvent | Caustic/strong acid (Except HF sample) | | | ● | | ● | | | ○ | | | | ● | | ○ | | |
| | Hydrofluoric acid | | | ● | | | | | | | | | | | | | |
| | Surfactant | | | | | ○ | | | ● | | ○ | | | ○ | | ● | |
| | Water-based paint | | | | | ○ | | | ● | | ○ | | | ○ | | ● | |
| Pharmaceutical/ biological sample | Dye/coloring agent | | | | | | | | ● | | ○ | | | | | ● | |
| | Protein-containing sample | | | | | ○ | | ○ | ● | ○ | | | | ○ | ○ | ● | |
| | Medicinal preparation | | | | | | | ○ | ○ | | ○ | | | ○ | ○ | | |
| | Enzyme solution | | | | | | ○ | ● | | | | ○ | | | ● | | |
| | Tris buffer | | | | | ● | | ○ | ○ | | | | ● | ○ | ○ | | |
| | Suspension | | | | | ○ | | | ● | | ● | | | ○ | | ● | |
| Food | Agar medium | | | | | | | | | | | | | | | | |
| | Jam | | | | | ○ | | | ● | | ○ | ○ | | ○ | | ● | |
| | Meat/fish/Fruit/vegetable/ Dough | | | | | | | | | | | ● | | | | | |
| | Honey | | | | | | | | | | | ● | | | | | |
| | Cheese/butter | | | | | | | | | | | | ○ | | | | |
| Beverage/ seasoning | Yogurt | ○ | ○ | | | ○ | | | ○ | ○ | | ○ | ○ | | ○ | | |
| | Bear | ○ | ○ | | | ○ | | | ● | ○ | ● | | ○ | ○ | | ● | |
| | Milk/Carbonated drink/juice/ sauce/soy sauce | | | | | ○ | | | ● | ○ | ○ | | | ○ | | ● | |
| Cosmetic/ lotion | Mayonnaise/ketchup | | | | | ○ | | | ● | | ○ | | | ○ | | ● | |
| | Beauty cream/mascara | | | | | ○ | | | ● | | ○ | ○ | | ○ | | ● | |
| | Gel/soap/shampoo/Hair dye lotion | | | | | ○ | | | ● | | ○ | | | ○ | | ● | |
| Emulsified liquid | | | | | ○ | | | ○ | | ● | | | ○ | | ○ | | |

● Recommended ○ Can be measured

| LONG ToupH | | FLAT | ISFET ELECTRODE GENERAL |
|---------------|----------|------|-------------------------------|
| 9480-10C | 6261-10C | | 0040-10D |
| 0-100 | 0-50 | | 0-60 |
| 8 | 12 | | 16 |
| 283 | 150 | | 190 |

| | | |
|---|---|---|
| ● | ● | ● |
| | | |
| ○ | | |
| ○ | | |
| | | |
| | | |
| | | |
| ○ | | ○ |
| ○ | | ○ |
| | | |
| | ● | ● |

| | | |
|---|---|---|
| | | |
| | | |
| ○ | | |
| ● | | |
| ○ | ○ | ○ |
| ● | | |
| | ● | ● |
| | ● | ● |

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|---|---|------------|
| | | |
| | | |
| | | |
| | | |
| | | |
| ○ | | |
| | | |
| | | |
| | ● | ● |
| | ○ | ●(surface) |
| | ○ | ●(surface) |
| | | ○(surface) |
| | ○ | ○(surface) |
| | ○ | ●(surface) |

Stable measurement for a wide range of samples. Standard **ToupH** glass electrode (9615S-10D)

STANDARD **ToupH**



High stability and drift reduction. No more worries about the timing of your measurement value readings.

- Uses responsive glass that is 10 times stronger than JIS standard. The domed shape provides strength in all directions, greatly reducing damage concerns.
- Constructed with smooth surfaces for easy wiping and cleaning.

Recommended

Perfect for preparing buffers. Can be used on a wide range of aqueous test solutions.

Stable measurement for routine testing. Standard plastic electrode (9625-10D)

STANDARD



The electrode has a plastic body which is ideal for general purpose measurement.

- Can be submerged up to 1m depth and 30mins. (with refilling port closed)
- Waterproof, Pb-free

Recommended

Ideal for general purpose use. For measurement of tap water and drinking water.

For extremely small samples Micro **ToupH** glass electrode (9618S-10D)

MICRO **ToupH**



This pH electrode with temperature compensation sensor can take measurements from samples as small as 50 μ L, the smallest in the world.

- Our original manufacturing technology (Japanese Patent No. 4054245) is used to produce 2-ply piping 3mm in diameter.
- Compatible with extremely small containers such as micro tubes etc.
- The temperature sensor is located at the tip for high-speed temperature response. Refrigerated samples can be measured without needing to wait for them to return to room temperature.

Recommended

Can be used for a wide range of aqueous solutions, including those that cannot be obtained in large quantities. We recommend using our specialized cleaning solution after measuring samples that contain proteins.

For using a large container Long **ToupH** glass electrode (9680S-10D)

LONG **ToupH**



283 mm length & 8 mm diameter. The long, thin design makes this electrode perfect for measuring in large containers and test tubes.

- Uses responsive glass that is 10 times stronger than JIS standard. The domed shape provides strength in all directions, greatly reducing damage concerns.

Recommended

For measuring samples such as microbe culture fluids in test tubes. We recommend that it be used with the long type electrode stand (FA-70L).

For highly viscous samples Sleeve **ToupH** glass electrode (9681S-10D)

SLEEVE **ToupH**



Stable measurement can also be achieved for high viscous samples.

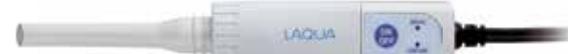
- The liquid junction section is constructed with a movable sleeve that can be rinsed clean, preventing highly viscous samples from clogging the liquid junction, and maintaining stable measurement performance

Recommended

For highly viscous samples and solutions, and samples that contain non-aqueous solvents (such as cosmetics or paints). We recommend that you take measurements while using the graph display function to confirm stable responses. (We recommend washing with a neutral detergent after use with samples that contain oil.)

For the surface of solid samples General ISFET pH electrode (0040-10D)

GENERAL **ISFET**



The sensor is located on the flat surface of the electrode tip, with less than a 100 μ m protrusion from the housing.

- Measurements can be made from a minute amount of moisture on the solid sample surface.
- Use of a semiconductor sensor means there are no concerns that the electrode will be damaged.
- Also perfect for measuring samples in shallow containers such as Petri dishes.
- Replaceable sensor

Recommended

For highly viscous samples and solutions, and samples that contain non-aqueous solvents (such as cosmetics or paints). We recommend that you take measurements while using the graph display function to confirm stable responses. (We recommend washing with a neutral detergent after use with samples that contain oil.)

Combination ISE

Ion-selective electrodes are responsive to concentration of particular ions in the test liquid and are variable-potential electrodes. They are used in conjunction with reference electrodes to measure the concentration of particular ions. HORIBA's years of experience and know-how in this field are behind the wide range of ion electrodes we offer.

When measurements are made using an ion meter, calibrating it with various standard solutions will give direct readings of the ion concentration. Note that since volume-detection level changes with temperature, measurements must be taken at a fixed temperature.

| Model | Accessories Included | Temp. Range (°C) | Measurement Range | pH Range |
|--|---|------------------|---|---|
|  <p>Ammonia ion (NH₃) electrode 5002S-10C 3200698386 Overall length: 161 mm Diameter of probe: 15 mm Connector: BNC</p> | <ul style="list-style-type: none"> • membrane cap, 3pcs • 1000mg/L ammonium ion standard solution, 50ml • 100mg/L ammonium ion standard solution, 50ml • ammonia electrode filling solution, 50ml • syringe • dropper • protective pipe • manual | 0 - 50 | 0.01 - 18,000 mg/L NH ₄ ⁺ (5 x 10 ⁻⁷ to 1 mol/L NH ₄ ⁺) | pH 12 or more |
|  <p>Calcium ion (Ca²⁺) electrode 6583S-10C 3200697410 Overall length: 150 mm Diameter of probe: 16 mm Connector: BNC</p> | <ul style="list-style-type: none"> • calcium electrode tip, 2pcs • 1000mg/L calcium ion standard solution, 50ml • 100mg/L calcium ion standard solution, 50ml • calcium electrode filling solution, 50ml • calcium ionic strength adjustor, 50ml • syringe • dropper • protective pipe • manual | 0 - 50 | 0.4 - 40,080 mg/L Ca ²⁺ (10 ⁻⁵ to 1 mol/L Ca ²⁺) | 4.0 mg/L (10 ⁻⁴ mol/L) Ca ²⁺ , pH 5 to 11 |
|  <p>Chloride ion (Cl⁻) electrode 6560S-10C 3200697407 Overall length: 150 mm Diameter of probe: 16 mm Connector: BNC</p> | <ul style="list-style-type: none"> • chloride electrode tip • 1000mg/L chloride ion standard solution, 50ml • 100mg/L chloride ion standard solution, 50ml • chloride electrode filling solution, 50ml • chloride ionic strength adjustor, 50ml • syringe • dropper • protective pipe • water-resistant abrasive sheet • manual | 0 - 50 | 0.35 - 35,000 mg/L Cl ⁻ (10 ⁻⁵ to 1 mol/L Cl ⁻) | 350 mg/L (10 ⁻² mol/L) Cl ⁻ , pH 3 to 11 |
|  <p>Fluoride ion (F⁻) electrode 6561S-10C 3200693774 Overall length: 150 mm Diameter of probe: 16 mm Connector: BNC</p> | <ul style="list-style-type: none"> • fluoride electrode tip • 1000mg/L fluoride ion standard solution, 50ml • 100mg/L fluoride ion standard solution, 50ml • fluoride electrode filling solution, 50ml • fluoride ionic strength adjustor, 50ml • syringe • dropper • protective pipe • manual | 0 - 50 | 0.02 - 19,000 mg/L F ⁻ (10 ⁻⁶ to 1 mol/L F ⁻) | 0.1 to 1,000 mg/L F ⁻ , pH 5 to 8 |
|  <p>Nitrate ion (NO₃⁻) electrode 6581S-10C 3200697408 Overall length: 150 mm Diameter of probe: 16 mm Connector: BNC</p> | <ul style="list-style-type: none"> • nitrate electrode tip, 2pcs • 1000mg/L nitrate ion standard solution, 50ml • 100mg/L nitrate ion standard solution, 50ml • nitrate electrode filling solution, 50ml • nitrate ionic strength adjustor, 50ml • syringe • dropper • protective pipe • manual | 0 - 50 | 0.62 - 62,000 mg/L NO ₃ ⁻ (10 ⁻⁵ to 1 mol/L NO ₃ ⁻) | 62 mg/L (10 ⁻³ mol/L) NO ₃ ⁻ , pH 3 to 7 |
|  <p>Potassium ion (K⁺) electrode 6582S-10C 3200697409 Overall length: 150 mm Diameter of probe: 16 mm Connector: BNC</p> | <ul style="list-style-type: none"> • potassium electrode tip, 2pcs • 1000mg/L potassium ion standard solution, 50ml • 100mg/L potassium ion standard solution, 50ml • potassium electrode filling solution, 50ml • potassium ionic strength adjustor, 50ml • syringe • dropper • protective pipe • manual | 0 - 50 | 0.39 - 39,000 mg/L K ⁺ (10 ⁻⁵ to 1 mol/L K ⁺) | 3.9 mg/L (10 ⁻⁴ mol/L) K ⁺ , pH 5 to 11 |



| Selection Coefficient | Replacement Tip | Electrode Filling Solution | 100mg/L Standard Solution | 1000mg/L Standard Solution | Ionic Strength Adjustor | Applications |
|--|---|----------------------------|---------------------------|----------------------------|--|---|
| — |  <p>NH₃ electrode membrane caps 3200705774</p> | 500-NH3-IFS 3200697173 | 500-NH4-SL 3200697172 | 500-NH4-SH 3200697171 | 500-NH3-ISA 3200697174  | Agriculture, Soil, Power Station Water, Fish Tanks, Sea Water, Waste Water, Plating Baths, Air / Stack Gases and Biological Cultures or Samples |
| Fe ³⁺ = 0.1, Fe ²⁺ , Zn ²⁺ = 1, Sr ²⁺ = 50 Ni ²⁺ , Cu ²⁺ = 70, Co ²⁺ = 350 Mn ²⁺ = 500, Mg ²⁺ = 1,000 Na ⁺ , K ⁺ , Ba ²⁺ , NH ₄ ⁺ = over 1,000 |  <p>7683S 3200697414</p> | 500-CA-IFS 3200697177 | 500-CA-SL 3200697176 | 500-CA-SH 3200697175 | 500-CA-ISA 3200697178 | Agriculture / Plant Tissue, Soil, Water Softening Systems, Boiler Feed Water, Drinking / Mineral Water, Biological Cultures, Dental / Clinical Analysis and Dairy / Food / Beverages Applications |
| S ₂ O ₃ ²⁻ , S ²⁻ , I ⁻ , Ag ⁺ , Hg ²⁺ = Not acceptable SCN ⁻ = 0.3, MnO ₄ ⁻ = 0.1 Br ⁻ = 0.03 NO ₃ ⁻ , F ⁻ , HCO ₃ ⁻ , SO ₄ ²⁻ , PO ₄ ²⁻ = 1,000 |  <p>7660S 3200697411</p> | 500-CL-IFS 3200697169 | 500-CL-SL 3200697168 | 500-CL-SH 3200697167 | 500-CL-ISA 3200697170 | Agriculture, River / Tap Water, Plant Tissue, Soils, Boiler Feed Water, Clinical Analysis, Sweat, Urine, Cement, Plating Baths and Dairy / Food / Beverages Samples |
| Possible interference when multiply-charged ion (ex. Al ³⁺ , Fe ³⁺) coexisted and foamed the complex. |  <p>7661S 3200693606</p> | 500-F-IFS 3200697165 | 500-F-SL 3200697164 | 500-F-SH 3200697163 | 500-F-TISAB 3200697166 | Dental / Toothpaste / Mouth Wash, Drinking / Seawater, Wastewater, Air / Stack Gases, Acids, Soils, Food, Biological Fluids, Plant Tissue, Coal, Carbonated Beverages and Bone |
| ClO ₄ ⁻ , I ⁻ = Not acceptable, Br ⁻ = 2 NO ₂ ⁻ = 3, Cl ⁻ = 300 HCO ₃ ⁻ , H ₂ PO ₄ ⁻ , SO ₄ ²⁻ = over 1000 |  <p>7681S 3200697412</p> | 500-NO3-IFS 3200697181 | 500-NO3-SL 3200697180 | 500-NO3-SH 3200697179 | 500-NO3-ISA 3200697182 | Agriculture / Plant Tissue / Fertilizers, Surface / Seawater / Drinking Water, Sewage Effluent, Soils, Meats, Vegetables, Foods / Beverages |
| Rb ⁺ = 0.4, Cs ⁺ = 3, NH ₄ ⁺ = 70 Li ⁺ , Na ⁺ , Mg ²⁺ , Ca ²⁺ , Sr ²⁺ , Ba ²⁺ = over 1,000 |  <p>7682S 3200697413</p> | 500-K-IFS 3200697185 | 500-K-SL 3200697184 | 500-K-SH 3200697183 | 500-K-ISA 3200697186 | Agriculture / Plant Tissue, Soils, Wastewater, River / Tap Water, Clinical Analysis, Saliva, Serum, Fertilizers, Soils and Wines, Dairy / Foods / Beverages |

Note: Detailed information on standard solutions, ISAs, and filling solutions can be found on page 21

Metallic Electrode (For ORP Measurement)

| Model | Operating Temperature Range (°C) | Electrode Material | Internal Solution | Applications |
|--|----------------------------------|--------------------|-------------------|---|
| ORP Electrode 9300-10D Waterproof platinum 3-in-1 type  3014046710 Overall length: 150 mm Diameter of probe: 12 mm Connectors: BNC & phono jack | 0-60 | Pt / Glass | #300 (KCl) | Waterproof; Platinum on the flat tip allows measurement of small volume samples |

Conductivity Cells (Submersible Type)

| Model | Cell Constant | Measurement Range | Temp. Range (°C) | Cell Material | Thermistor | Minimum Sample Volume (ml) | Application |
|--|----------------------|----------------------|------------------|-----------------------|------------|----------------------------|---|
| 3551-10D  3014081712 Overall length: 175 mm Diameter of probe: 23 mm Connectors: BNC & phono jack | 0.1 cm ⁻¹ | 0.1 μS/cm - 10 mS/cm | 0 - 60 | Pt-Pt black / Glass | Built-in | 50 | Low conductivity water (e.g., deionized, distilled) |
| | 10 m ⁻¹ | 10 μS/m - 1 S/m | | | | | |
| 3552-10D  3014081545 Overall length: 150 mm Diameter of probe: 12 mm Connectors: BNC & phono jack | 1 cm ⁻¹ | 1 μS/cm - 100 mS/cm | 0 - 100 | Pt-Pt black / Glass | Built-in | 15 | General purpose use |
| | 100 m ⁻¹ | 0.1 mS/m - 10 S/m | | | | | |
| 3553-10D  3014081714 Overall length: 175 mm Width of probe: 28 mm Connectors: BNC & phono jack | 10 cm ⁻¹ | 10 μS/cm - 1 S/cm | 0 - 60 | Pt-Pt black / Glass | Built-in | 50 | High conductivity water |
| | 1000 m ⁻¹ | 1 mS/m - 100 S/m | | | | | |
| 9382-10D  3014046709 Overall length: 150 mm Diameter of probe: 16 mm Connectors: BNC & phono jack | 1 cm ⁻¹ | 1 μS/cm - 100 mS/cm | 0 - 80 | Ti-Pt black / Plastic | Built-in | 20-30 | General purpose use; Waterproof |
| | 100 m ⁻¹ | 0.1 mS/m - 10 S/m | | | | | |

Conductivity Cells (Flow Type)

| Model | Cell Constant | Measurement Range | Temp. Range (°C) | Cell Material | Thermistor | Minimum Sample Volume (ml) | Application |
|--|----------------------|----------------------|------------------|---------------------|------------|----------------------------|---|
| 3561-10D  3014082350 Overall length: 143 mm Diameter of probe: 18 mm Connectors: BNC & phono jack | 0.1 cm ⁻¹ | 0.1 μS/cm - 10 mS/cm | 0 - 60 | Pt-Pt black / Glass | Built-in | 10 | Low conductivity water (e.g., deionized, distilled) |
| | 10 m ⁻¹ | 10 μS/m - 1 S/m | | | | | |
| 3562-10D  3014082350 Overall length: 205 mm Diameter of probe: 18 mm Connectors: BNC & phono jack | 1 cm ⁻¹ | 1 μS/cm - 100 mS/cm | 0 - 60 | Pt-Pt black / Glass | Built-in | 16 | General purpose use |
| | 100 m ⁻¹ | 0.1 mS/m - 10 S/m | | | | | |
| 3573-10C  3014082590 Overall length: 222 mm Diameter of probe: 18 mm Connector: BNC | 10 cm ⁻¹ | 10 μS/cm - 1 S/cm | 0 - 60 | Pt-Pt black / Glass | — | 4 | High conductivity water |
| | 1000 m ⁻¹ | 1 mS/m - 100 S/m | | | | | |
| 3574-10C  3014082592 Overall length: 136 mm Diameter of probe: 66 mm Connector: BNC | 10 cm ⁻¹ | 10 μS/cm - 100 mS/cm | 0 - 60 | Pt-Pt black / Glass | — | 0.25 | Small volume sample (e.g., column chromatography) |
| | 1000 m ⁻¹ | 1 mS/m - 10 S/m | | | | | |



501-S NIST pH Buffer Solution Kit



502-S USA pH Buffer Solution Kit



503-S Conductivity Standard Solution Kit



ORP Powders



220

250



230

Cleaning Solutions

pH Buffer Solution Kits

| Code | Part No. | Description | Volume |
|-------|------------|--|------------|
| 501-S | 3999960015 | NIST pH Buffer Solution Kit (pH 4.01, 6.86, 9.18 buffers & 3.33M KCl) | 250ml each |
| 502-S | 3999960016 | USA pH Buffer Solution Kit (pH 4.01, 7.00, 10.01 buffers & 3.33M KCl) | 250ml each |

pH Buffer Solutions

| Code | Part No. | Description | Volume |
|---------|------------|----------------------------------|--------|
| 500-2 | 3999960028 | pH 1.68 Buffer Solution at 25°C | 500ml |
| 500-4 | 3999960029 | pH 4.01 Buffer Solution at 25°C | 500ml |
| 500-686 | 3999960030 | pH 6.86 Buffer Solution at 25°C | 500ml |
| 500-7 | 3999960031 | pH 7.00 Buffer Solution at 25°C | 500ml |
| 500-9 | 3999960032 | pH 9.18 Buffer Solution at 25°C | 500ml |
| 500-10 | 3999960033 | pH 10.01 Buffer Solution at 25°C | 500ml |
| 500-12 | 3999960034 | pH 12.46 Buffer Solution at 25°C | 500ml |

Conductivity Standard Solution Kit

| Code | Part No. | Description | Volume |
|-------|------------|--|------------|
| 503-S | 3999960017 | Conductivity Standard Solution Kit (84µS/cm, 1413µS/cm, 12.88mS/cm & 111.8mS/cm) | 250ml each |

Conductivity Standard Solutions

| Code | Part No. | Description | Volume |
|--------|------------|--|--------|
| 500-21 | 3999960035 | 84 µS/cm Conductivity Standard Solution | 500ml |
| 500-22 | 3999960036 | 1413 µS/cm Conductivity Standard Solution | 500ml |
| 500-23 | 3999960037 | 12.88 mS/cm Conductivity Standard Solution | 500ml |
| 500-24 | 3999960038 | 111.8 mS/cm Conductivity Standard Solution | 500ml |

ORP Powders

| Code | Part No. | Description | Volume |
|--------|------------|-------------------------------------|-----------------|
| 160-51 | 3200043618 | 89 mV at 25°C (for 250ml solution) | 10 sachets/pack |
| 160-22 | 3200043617 | 258 mV at 25°C (for 250ml solution) | 10 sachets/pack |

pH/ORP Electrode Filling Solutions

| Code | Part No. | Description | Volume |
|-------|------------|-------------|--------|
| 525-3 | 3999960023 | 3.33M KCl | 250ml |
| 300 | 3200043640 | 3.33M KCl | 250ml |

pH Electrode Cleaning Solutions

| Code | Part No. | Description | Volume |
|------|------------|--|--------------|
| 220 | 3014028653 | For removing inorganic residues from glass membrane and liquid junction | 2 x 50ml |
| 230 | 3200530494 | For removing inorganic and organic residues from glass membrane (30ml Solution A & 100ml Solution B) | 30ml & 100ml |
| 250 | 3200366771 | For removing protein residues from glass membrane and liquid junction | 400ml |



Calcium Ion Electrode Solutions



Chloride Ion Electrode Solutions



Fluoride Ion Electrode Solutions



Potassium Ion Electrode Solutions



Ammonia Ion Electrode Solutions



Nitrate Ion Electrode Solutions

Ion Standard Solutions

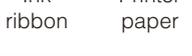
| Code | Part No. | Description | Volume |
|------------|------------|---|--------|
| 500-NH4-SH | 3200697171 | 1000 mg/L Ammonium Ion Standard Solution | 500ml |
| 500-NH4-SL | 3200697172 | 100 mg/L Ammonium Ion Standard Solution | 500ml |
| 500-CA-SH | 3200697175 | 1000 mg/L Calcium Ion Standard Solution | 500ml |
| 500-CA-SL | 3200697176 | 100 mg/L Calcium Ion Standard Solution | 500ml |
| 500-CL-SH | 3200697167 | 1000 mg/L Chloride Ion Standard Solution | 500ml |
| 500-CL-SL | 3200697168 | 100 mg/L Chloride Ion Standard Solution | 500ml |
| 500-F-SH | 3200697163 | 1000 mg/L Fluoride Ion Standard Solution | 500ml |
| 500-F-SL | 3200697164 | 100 mg/L Fluoride Ion Standard Solution | 500ml |
| 500-NO3-SH | 3200697179 | 1000 mg/L Nitrate Ion Standard Solution | 500ml |
| 500-NO3-SL | 3200697180 | 100 mg/L Nitrate Ion Standard Solution | 500ml |
| 500-K-SH | 3200697183 | 1000 mg/L Potassium Ion Standard Solution | 500ml |
| 500-K-SL | 3200697184 | 100 mg/L Potassium Ion Standard Solution | 500ml |

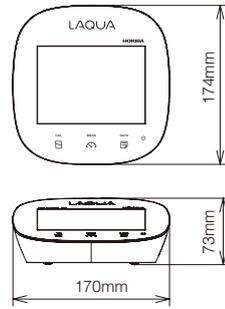
Ionic Strength Adjustors

| Code | Part No. | Description | Volume |
|-------------|------------|---|--------|
| 500-NH3-ISA | 3200697174 | Ammonia Ionic Strength Adjustor  | 500ml |
| 500-CA-ISA | 3200697178 | Calcium Ionic Strength Adjustor | 500ml |
| 500-CL-ISA | 3200697170 | Chloride Ionic Strength Adjustor | 500ml |
| 500-F-TISAB | 3200697166 | Fluoride Ionic Strength Adjustor | 500ml |
| 500-NO3-ISA | 3200697182 | Nitrate Ionic Strength Adjustor | 500ml |
| 500-K-ISA | 3200697186 | Potassium Ionic Strength Adjustor | 500ml |

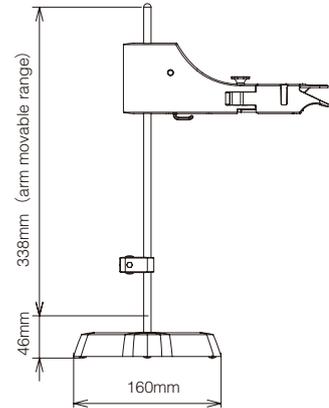
Ion Selective Electrode Filling Solutions

| Code | Part No. | Description | Volume |
|-------------|------------|--------------------------------------|--------|
| 500-NH3-IFS | 3200697173 | Ammonia Electrode Filling Solution | 500ml |
| 500-CA-IFS | 3200697177 | Calcium Electrode Filling solution | 500ml |
| 500-CL-IFS | 3200697169 | Chloride Electrode Filling Solution | 500ml |
| 500-F-IFS | 3200697165 | Fluoride Electrode Filling Solution | 500ml |
| 500-NO3-IFS | 3200697181 | Nitrate Electrode Filling Solution | 500ml |
| 500-K-IFS | 3200697185 | Potassium Electrode Filling Solution | 500ml |

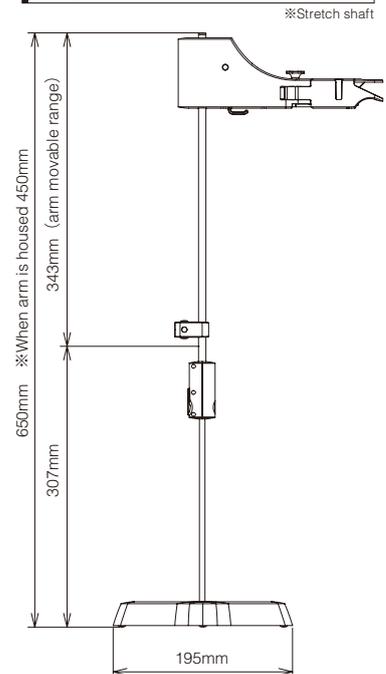
| Accessories | | |
|---|--|--|
| Code | Part No. | Description |
|  LAQUA-SW-21CFR11 | 3200707161 | 21 CFR Part 11 Software includes CD with PIN code, USB cable, and manual |
|  | 3014030147 (230v) 3014030146 (120v) | Printer (for GLP/GMP compliance) Cable sold separately, Plain paper |
|  | 3014030148 | Printer cable (1.5 m) |
|  | 3014030149 | Printer paper (20 rolls) |
|  | 3014030150 | Ink ribbon (5 pcs/set) |
|  | 3200647413 | Multi-Voltage (100-240V) with 6 plugs, (US, UK, EU, ANZ, Korea and China) 1.8 m cable |
|  | 3014028368 | Digital simulator X-51 (pH, mV, Ion, DO, temperature simulator) |
|  | 3014028370 | Digital simulator X-52 (Conductivity, temperature simulator) |
|  | 3200382462 | LCD protection sheet (2 pcs/pack) |
|  | 3200382441 | Protection cover (Protects the meter for F-70, DS-70, 1000 series) |
|  | 3200373941 | USB cable (to connect meter and PC.) |
|  | 3014030152 | Analog cable (Analog (alarm) output cable) |
| | 3014030151 | Serial cable (to connect meter and PC (Serial, 9 pins)) |
| FA-70S | 3200382557 | Adjustable, free-standing electrode stand (Height: 384 mm) <i>image on the right</i> |
| FA-70L | 3200382560 | Long, free-standing electrode stand (Height: 450-650mm) <i>image on the right</i> |
|  | 3200373991 | Arm for electrode stand FA-70A, FA-70S, & FA-70L |
|  | 3200373961 | Electrode holders, 2pcs (for mounting electrode with round cap on electrode stand arm) |
|  | 3200382477 | Electrode protection caps, 3pcs (for 9615S-10D, 9618S-10D, 9681S-10D pH electrode) |
|  | 3200043508 | Electrode protection caps, 5pcs (for 9621-10D, 9625-10D, 9630-10D, 9631-10D, 9632-10D, 6367-10D, 6377-10D, 6252-10D, 6261-10C, 1066A-10C, 1076-10C, 2060-10T, 9300-10D, 9382-10D, 3552-10D pH electrode) |
|  | 3200382482 | Electrode protection cap for long electrode (for 9680S-10D, 9480-10C pH Electrode) |



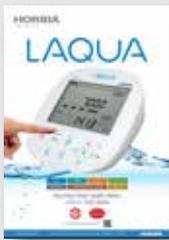
Body • Standard Electrode Stand



Long Type Electrode Stand



With over 60 years of engineering excellence, HORIBA's diverse range of water quality analyzers and electrodes are ideal for everyday laboratory needs through to the most demanding of applications. Visit our website for a wealth of useful information and water quality measurement tips to help you obtain the best results in your work.



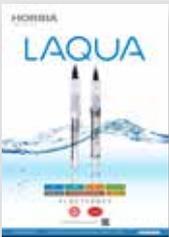
Benchtop Meters

Developed using extensive feedback from users, our new LAQUA meters deliver the best solution for water quality analysis. Our LAQUA website features an online 'Selection Guide' to enable you to find the perfect LAQUA meter and electrode for your need.



Handheld Meters

In the lab, in the field or anywhere you need it. LAQUA Handheld meters are designed for use with one hand and with an IP67 waterproof rating and shock-resistant casing. Meters can be used for long periods, even in dark places, making it ideal for field measurements in rivers and lakes.



Electrodes

Various electrodes to match any application. A wide range of products for both benchtop and portable systems are available, including easy and reliable standard models, application-focused models for small samples or large containers, and special electrodes for specific sample characteristics.



Pocket Meters

Analyzing water quality is simplified when using our LAQUAtwin range of meters. Designed to produce accurate and reliable results. Anyone, anywhere, at any time can measure samples easily with a LAQUAtwin meter. See just how good they are at our website.



Application Notes

LAQUAtwin pocket meters offer quick and convenient alternative to analyze important parameters with high accuracy. Several application notes are available at (<http://goo.gl/znwE6j>) detailing the use of LAQUAtwin and the results achieved for the respective applications. Additional application notes will be added when available.



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