

2100 Series Laboratory Turbidimeters

Pioneering
technology in turbidity
monitoring.



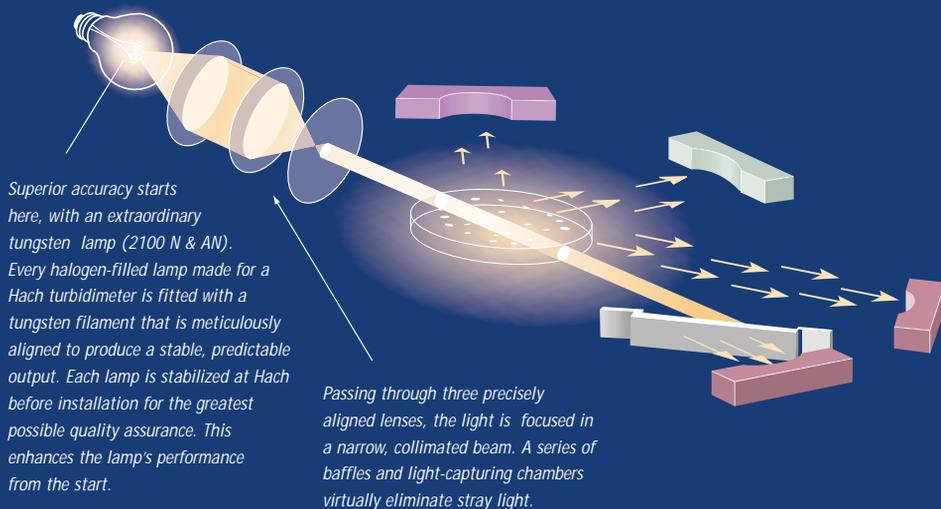
Superior performance

Easier operation



Hach turbidimeters are the preferred choice of water quality managers around the world, because they are engineered to provide superior accuracy and sensitivity in any application. Since Hach introduced the first laboratory turbidimeter for testing drinking water more than 30 years ago, our optical system has evolved continuously. Now – with new advances in optics, digital signal processing, control and self-diagnostic software – these are still the world's most versatile and reliable laboratory turbidimeters.

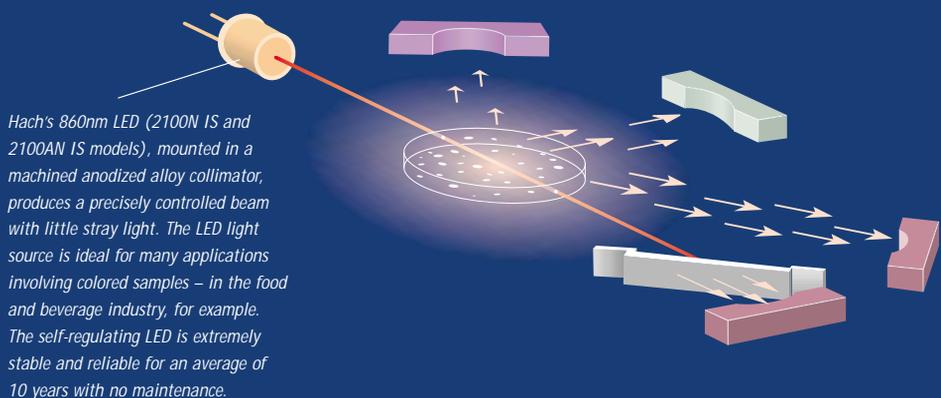
2100N / 2100AN TURBIDIMETERS



With a back-scatter detector, 2100AN and 2100AN IS models are uniquely equipped to measure high levels of turbidity (up to 10,000 NTU) with excellent accuracy.

With Ratio Measurement turned off, the instrument uses only the 90-degree detector to provide a pure nephelometric measure of turbidity.

2100N IS / 2100AN IS TURBIDIMETERS



In Ratio Measurement mode, an array of additional detectors provide data that make 2100 Series Turbidimeters even more versatile. Hach's patented Ratio Measurement system reduces color interference and maintains calibration stability.



Be Right™

Hach 2100 Series Turbidimeters. The primary standard for versatility, accuracy and value.

Hach makes a 2100 Series Turbidimeter for virtually every application – and every model includes technology and reliability you won't find anywhere else. Regardless of your requirements for regulatory compliance, accuracy, or sensitivity at extremely high or low levels of turbidity, there is a 2100 Series Turbidimeter that meets your needs exactly.

Which 2100 Series Turbidimeter is right for you?

Choose the right light source –

Choose a tungsten light source to comply with U.S. EPA 180.1 requirements, or an LED to comply with European ISO 7027 Turbidity Measurement Standards.

Otherwise, choose a light source that matches the parameters of your application. For samples with very small particles, a tungsten lamp is preferred for its shorter wavelengths and greater sensitivity in the low range of turbidity (< 1 NTU).

2100N / 2100N IS TURBIDIMETERS

Specifications

Resolution: 0.001 NTU

Repeatability: $\pm 1\%$ of reading or 0.01 NTU, whichever is greater

Warranty: 2 years

Power: 115/230 VAC, 50/60 Hz

Operating modes: Manual or Auto Range;
Signal Avg on or off

2100N

- Meets EPA Method 180.1
- Light source: tungsten lamp (typical life, 8,800 hours continuous use)
- Accuracy:
 $\pm 2\%$ of reading or 0.01 NTU from 0 to 1,000 NTU
 $\pm 5\%$ of reading from 1,000 to 4,000 NTU
- Range: 0-4,000 NTU
- Measurement modes: Select NTU, EBC, or NEP
- Ratio on or off
- Min. sample volume: 20 ml

To Order:

- 2100N North American power cord:
Cat.# 47000-00
- 2100N European power cord:
Cat.# 47000-02

2100N IS

- Meets ISO 7027, DIN 3804 and NFT 9033
- Light source: 860 nm LED (typical life, 10 years continuous use)
- Accuracy:
 $\pm 2\%$ of reading or 0.01 FNU/NTU from 0 to 1,000 FNU/NTU
- Range: 0-1,000 FNU/NTU
- Measurement modes: Select FNU or NTU
- Non-ratio only
- Min. sample volume: 20 ml

To Order:

- 2100N IS North American power cord:
Cat.# 47900-00
- 2100N IS European power cord:
Cat.# 47900-02

Analytical workhorses.

With Hach's patented optical system and 30 years of design evolution, the 2100N and 2100N IS Turbidimeters meet the needs of most laboratories for fast, accurate turbidity testing over a wide range of samples. The 2100N is equipped with a tungsten lamp, while the 2100N IS is equipped with an 860 nm LED light source. Otherwise, the two models offer comparable performance.

RS232 input/output

Enables you to send data to a computer or external printing device.

Regulatory reporting

The 2100N is equipped with a stable halogen-filled, tungsten filament lamp to meet the reporting requirements of EPA Method 180.1. The 2100N IS is equipped with an 860 nm LED light source to meet ISO 7027 Turbidity Measurement Standards.

Meets worldwide industry safety and design standards

Listed to UL 1262 and certified to CSA 22.2 No. 1010.1 by Edison Testing Laboratories (ETL). Carries the CE compliance mark.

Air purge prevents condensation within sample chamber

A built-in connection allows you to purge the sample compartment with dry air to prevent light scattering caused by condensation, which allows you to measure cold and hot samples.



For colored samples – in industries such as foods, petrochemicals and pharmaceutical processing – the LED is generally superior. (Hach's Ratio Measurement mode is also an effective method of reducing color interference. For the greatest possible reduction of color and other sample interferences, use an LED-based turbidimeter *and* Ratio Measurement.)

Choose the right level of performance –

The 2100N and 2100N IS are ideal for daily analytical tasks or for regulatory monitoring. Step-by-step menus guide you through

calibration, normal operation and diagnostics. Advanced features like Ratio Measurement and signal averaging ensure that your results will be accurate and consistent in all conditions.

The 2100AN and 2100AN IS are ideal for research, process monitoring and product control at any level of turbidity – up to 10,000 NTU. Programmable signal averaging, calibration curves, recorder outputs and a built-in printer are powerful tools for optimizing your test procedures and managing your results.

Smart self-diagnostics

Relax. The instrument will alert you if you make a mistake – such as inserting the wrong calibration standard.

Three readout modes

Measuring turbidity over an extended range, three selectable readout modes are available for the 2100N: NTU, NEP and EBC. The 2100N IS displays measurements in FNU and NTU.



Hach-patented Ratio Measurement (2100N, AN, and AN IS only)

One keystroke initiates Ratio Measurement and activates an array of detectors in addition to the 90-degree nephelometric detector. Ratio Measurement corrects for color interference, enhances calibration stability, and allows the measurement of turbidity at levels greater than 1,000 NTU.

StabCal® Stabilized Formazin Standards – No preparation, fast calibration.

Hach's patented StabCal Stabilized Formazin is true non-toxic Formazin, not a synthetic – as required by ISO 7027 and EPA 180.1. It scatters light exactly like a freshly diluted, conventional formazin standard. But StabCal is delivered at precisely the concentration you need. It requires no preparation before you use it, and its stability is guaranteed for a minimum of one year.



Laboratory accessories

A complete selection of accessories are available to speed up routine testing and improve the accuracy of your test results. Flow cell kits – including a high-pressure flow cell – convert your testing process into a nearly continuous operation. Sample conditioning accessories and special filter modules help eliminate error caused by entrained gases and color interference.

Only StabCal and Hach-prepared Formazin guarantee the reproducibility necessary for optimal performance. Unlike conventional formazin, StabCal is available in ready-prepared sets of sealed sample vials, customized for full-range calibration of all 2100 Series turbidimeters. They are also available in bulk.

2100AN / 2100AN IS TURBIDIMETERS

Specifications

Resolution: 0.001 NTU
 Repeatability: $\pm 1\%$ of reading or 0.01 NTU, whichever is greater
 Warranty: 2 years
 Power: 115/230 VAC, 50/60 Hz
 Operating modes: Manual or Auto Range;
 Signal Avg on or off;
 Ratio on or off

2100AN

- Meets EPA Method 180.1
- Light source: tungsten lamp (typical life, 8,800 hours continuous use)
- Accuracy:
 - $\pm 2\%$ of reading or 0.01 NTU from 0 to 1,000 NTU
 - $\pm 5\%$ of reading from 1,000 to 4,000 NTU
 - $\pm 10\%$ of reading from 4,000 to 10,000 NTU
- Range: 0-10,000 NTU
- Measurement modes: Select NTU, EBC, NEP, ABS, %T, color units or two user-defined units
- Min. sample volume: 20 ml

To Order:

- 2100AN North American power cord:
Cat. # 47001-00
- 2100AN European power cord:
Cat. # 47001-02

2100AN IS

- Meets ISO 7027, DIN 3804 and NFT 9033
- Light source: 860 nm LED (typical life, 10 years continuous use)
- Accuracy:
 - $\pm 2\%$ of reading or 0.01 FNU from 0 to 1,000 FNU
 - $\pm 10\%$ of reading from 20.0 to 10,000 FAU
 - $\pm 2\%$ of reading or 0.01 NTU from 0 to 1,000 NTU
 - $\pm 5\%$ of reading from 1,000 to 4,000 NTU
 - $\pm 10\%$ of reading from 4,000 to 10,000 NTU
- Range: 0-10,000 NTU
0-1,000 FNU
- Measurement modes: Select FNU, FAU, NTU, EBC, ABS, %T, or two user-defined units
- Min. sample volume: 20 ml

To Order:

- 2100AN IS North American power cord:
Cat. # 47901-00
- 2100AN IS European power cord:
Cat. # 47901-02

Enhanced performance for the demanding user.

In addition to providing all the capabilities of the 2100N and 2100N IS models, the 2100AN and 2100AN IS Turbidimeters are ideal for testing samples in the higher ranges of color and turbidity. Many features – such as signal averaging and recorder outputs – are programmable in the 2100AN and 2100AN IS models. And with such enhanced features as interchangeable color filters and user-defined, Application-Specific Calibration (ASC), they are well-equipped for color compensation and measurement.

Expanded recorder output

The instrument's internal printer, external RS232 port, and recorder outputs can all send signals simultaneously.

Air purge prevents condensation

Meets worldwide industry safety and design standards

Listed to UL 1262 and certified to CSA 22.2 No. 1010.1 by Edison Testing Laboratories (ETL). Carries the CE compliance mark.

Enhanced flow cell options

Now, you can program flow time, duration, and static or dynamic measurements.



Step up to the 2100 Series.

For greater confidence and convenience in turbidity testing, insist on a Hach 2100 Series Laboratory Turbidimeter. Call Hach, and ask for any of these specification sheets and technical bulletins:

- 2100 Series Laboratory Turbidimeters – Specifications Sheet No.1588
- Laboratory Accessories – Specifications Sheet No.4261
- StablCal, Low-NTU StablCal, and conventional formazin standards – Specifications Sheet No.1582
- Booklet No.7045, "Turbidity Standards."

Call 1-800-227-HACH.

Built-in printer

Simplifies documentation by printing date/time, sample ID number, and measurement/calibration data.

Extended range, more readout options

Both the 2100AN and 2100AN IS measure turbidity over an extended range: up to 10,000 NTU. The 2100AN also displays test results in NEP, EBC, ABS, %T, CU and two user-defined units. Display options on the 2100AN IS include FNU, FAU, EBC, ABS, %T and two user-defined units.



Enhanced Ratio Measurement

With a 135-degree Back Scatter Detector added to the instrument's array of light detectors, Ratio Measurement in the 2100AN and 2100 AN IS is even more effective at correcting for color interference in colored samples.

Regulatory reporting

The 2100AN is equipped with a stable halogen-filled, tungsten filament lamp to meet the reporting requirements of EPA Method 180.1. The 2100AN IS is equipped with an LED light source to meet ISO 7027 Turbidity Measurement Standards.

Programmable signal averaging – user-adjustable up to 15-seconds

The system automatically stabilizes the displayed value when large or irregular particles cause the measured value to fluctuate excessively.

2100 Series Laboratory Turbidimeters are ideal for regulatory and non-regulatory testing in many industries – wherever accuracy, consistency and reliability are critical.

- Drinking water
- Waste water
- Food and beverage
- Pharmaceuticals
- Mining
- Petrochemical
- Environmental monitoring
- Paints and resins
- Microbiology
- Process optimization

Call 1-800-227-HACH today to learn more about the value of turbidity testing with 2100 Series Laboratory Turbidimeters. Or visit us on-line at www.hach.com.

Hach – World class technology and support

At Hach, state-of-the-art technology is only part of the equation – a given. Combine this with Hach's renowned worldwide support, dedicated technical support staff and skilled, responsive service teams, and you have the formula for success in water analysis and testing.

Pioneering R&D



Since its earliest days, Hach has maintained – in fact, *defined* – the leading technological edge in testing and analysis of water. From sophisticated, high-end laboratory instruments to special on-line process monitoring systems to virtual laboratories-in-a kit, Hach set the standard for others to follow.

Accuracy, repeatability, reliability

By using its own special reagents – stable, pre-measured, sealed from contamination – Hach has elevated analytical chemistry to a new level of accuracy. Hach's precise sampling, mixing and analytical procedures, designed into every piece of Hach equipment, give you accurate, repeatable results time after time.

Total support – on line, on the phone, at your door



Hach's outstanding technical staff responds quickly and accurately to all calls. From simple questions on the phone to complex inquiries requiring the expertise of our Technical Support Group, to extended on-site visits in the field, Hach support is second to none. Customers can also e-mail their requests to techhelp@hach.com.

The Hach Technical Training Center

The Hach Technical Training Center in Loveland, Colorado has hosted thousands of chemists, technicians, operators, educators and supervisors, all participating in the most up-to-date, practical analytical training available. Topics cover fields as diverse as water and wastewater, boiler and cooling water, meat and dairy products, microbiology, sludge and soils. For a course schedule call 1-800-227-4224 x2391.

Factory-trained experts – on call in 95 countries



Hach's dedicated service staff is now available in 95 countries – and counting. Whatever challenge you encounter – choosing the right system, understanding a new procedure, troubleshooting an instrument – Hach's specialists are available to help you.

Installation, warranty and repair assistance can be accessed

easily through Hach's toll-free number: 1-800-227-4224. (Overseas, call the Hach dealer located near you.)

For current price information, technical support and ordering assistance, contact the Hach office or distributor serving your area.

Hach Company is
ISO 9001 Certified

In the United States, contact:

HACH COMPANY
P.O. Box 389
Loveland, Colorado 80539-0389
U.S.A.
Telephone: 800-227-4224
Fax: 970-669-2932
E-mail: orders@hach.com
www.hach.com

International customers, contact:

HACH COMPANY
P.O. Box 389
Loveland, Colorado 80539-0389
U.S.A.
Telephone: 970-669-3050
Fax: 970-461-3939
E-mail: intl@hach.com
www.hach.com

**Call 1-800-227-4224
for superior accuracy and
precise process control.**

HyXo Oy

P.O. Box 16 (Palokorvenkatu 2)
FI-04261 Kerava, Finland
Tel. +358 10 417 4500
Fax +358 10 417 4501
hyxo@hyxo.fi • www.hyxo.com

Lit. No. 4346
B28 Printed in U.S.A.
©Hach Company, 2002. All rights reserved.



Be Right™