THE NEW

1720E

experience + accuracy + simplicity

What can the unsurpassed

WORLD LEADER IN TURBIDITY

measurement do for you?

The 1720E TURBIDIMETER

is the newest in a long line of successful Hach turbidimeters from the unsurpassed world leader in turbidity measurement.

HACH®

Be Right™

THE NEW

1720E

experience + accuracy + simplicity

EXPERIENCE

The Model 1720E Low Range Turbidimeter reflects an astounding 45 years of Hach leadership in turbidity measurement science. Metropolitan water treatment systems, rural water utilities, wastewater treatment plants large and small, and industrial processes of every kind - all have relied on Hach turbidimeters for nearly five decades. In fact, Hach has the largest turbidimeter installation base in the world.

Operators and engineers alike know they can count on the performance of Hach turbidimeters and calibration standards as well as the experienced Hach personnel designing, manufacturing, selling, installing, and supporting these systems. Additionally, Hach offers a 2-year warranty on the 1720E, compared to the 1-year warranty offered with many other turbidimeters on the market. Hach is not only the world's turbidity leader, but also your partner in turbidity measurement, filtration management, and treatment process optimization solutions.

ACCURACY

Now, the 1720E Turbidimeter combines Hach's proven design, demonstrated accuracy and reliability, plus innovative elements that add more power and utility to your low-level turbidity monitoring program:

> Built-in bubble removal system - eliminates falsely high readings at low levels

> Sensitivity - fast response to fine changes in low-level turbidity

> Repeatability -not affected by sample flow and pressure

SIMPLICITY

> Simplified two-module design - sensor and controller interface with simple plug & play connection

> Reduced instrumentation - controller accepts two sensors; adding a second 1720E sensor unit gives you two complete turbidimeters

> Easy calibration and verification - with no interruption in sample flow

THE BEST TOOL FOR EFFLUENT MONITORING REQUIREMEN

PRINCIPLE OF OPERATION

NEPHELOMETRIC MEASUREMENT

Incandescent light directed from the sensor head assembly down into the turbidimeter body is scattered by suspended particles in the sample. The sensor's submerged photocell detects light scattered at 90° from the incident beam.

SAMPLE FLOW PATH

Sample enters the center column of the turbidimeter, rises into the measuring chamber and spills over the weir into the drain port. This configuration results in an optically flat surface free of turbulence.

SIMPLIFIED CALIBRATION

One-point calibration with prepared StablCal® Stabilized Formazin Solution eliminates the errors of formazin suspension dilution, takes less than two minutes per sensor, and is a USEPA-accepted method.

BUILT-IN BUBBLE REMOVAL

Continuously flowing sample flows through the patented* bubble removal system, which vents entrained air from the sample stream and eliminates the most significant interference in low-level turbidity measurement. The built-in bubble removal system is immune to changes in sample flow and pressure.

COMPLIANT DESIGN

The 1720E Low Range Turbidimeter applies the instrument design and meets performance criteria established by the U.S. Environmental Protection Agency (USEPA) in Method 180.1, making it suitable for regulatory reporting.

*U.S. patent 5,831,727

SIMPLE RELIABLE CALIBRATION TOOLS

ICE-PIC™ VERIFICATION MODULE

The ICE-PIC™ Module is a newer, faster way to calibrate and check the performance of Hach 1720 series turbidimeters. The benefits of using the ICE-PIC™ Module include:

- Saves time - verify performance in less than one minute
- Accurate - factory calibrated, with a certificate of accuracy provided
- Cost effective - a one-time investment, with no consumables
- Small and lightweight - great for spot verification around the facility
- Available in 20 and 1.0 NTU

STABLCAL® STABILIZED FORMAZIN PRIMARY STANDARDS

- Disposable and non-toxic
- Avoid preparation and dilution of formazin standards with StablCal® standards
- Can be used to calibrate any turbidimeter
- Guaranteed shelf life of two years
- Low level certified standards available in 1 L or 3.78 L (1 Gallon)
- Low level standards range from 0.06 to 1 NTU

TS!

POWERFUL DATA MANAGEMENT AND COMMUNICATIONS

DATA COLLECTION AND DISPLAY

The 1720E Turbidimeter sc100 Controller receives data from one or two sensors. Its built-in data logger collects turbidity measurements at user selectable intervals (1-15 minutes), along with calibration and verification points, alarm history, and instrument setup changes for 6 months. Local display, recall, graphing, and trending in CSV format make chart recorders redundant.

DIRECT DIGITAL COMMUNICATION

This revolutionary smart controller is a new standard for Hach instruments. Not only will it accept a rapidly increasing number of Hach analytical tools; but it will reduce your operator training load as a wide variety of instruments will share the same interface and control method.

The sc100 Controller also offers optional DigitalDirect solutions for direct measurement from sensor to control room - no analog/digital conversion. Choose from MODBUS®/RS485, MODBUS/RS232, LonWorks protocols, or the wireless IR port.

MORE OUTPUT FEATURES

Meet your specific application needs with even more data management and communication features:

- > Two analog outputs; three set-point alarms
- > Wireless IR port communication
- > Compatibility with existing AquaTrend® Networks
- > Data is downloadable in user-selected time intervals; stores up to 6 months of data

THE LARGEST SURFACE WATER TREATMENT PLANT

in the world has been using Hach process turbidimeters for years.

The city of Chicago has two plants that currently have more than 300 Hach 1720D turbidimeters installed to meet the high volume demand and NPDWR regulatory rules. Why Hach? According to John Spatz, the Bureau of Water Supply Deputy Commissioner, the instruments have proven to be "very accurate and dependable."

The facility has found that the 1720D turbidimeters need very little maintenance and are easy to operate. Spatz says they rarely refer back to the manual once the instrument is installed. "The instruments are very user-friendly" according to Spatz. He also likes the idea of having data back-up in the unit, in case the SCADA system is not operational.

During the purchasing research, the city looked at several turbidimeters, then chose Hach because the 1720D best fit the facilities' needs. The plants also use several Hach bench-top turbidimeters.

HACH®

Be Right™

1720E SPECIFICATIONS*

Range	0.001-100 Nephelometric Turbidity Units (NTU)
Accuracy**	± 2% of reading or ± 0.015 NTU (whichever is greater) from 0 to 40 NTU; ± 5% of reading from 40 to 100 NTU
Displayed Resolution	0.0001 NTU from 0 to 9.9999 NTU; 0.001 NTU from 10.000 to 99.999 NTU
Repeatability**	Better than ± 1.0% of reading or ± 0.002 NTU, whichever is greater
Response Time	For a full-scale step change, initial response in 1 minute, 15 seconds
Signal Average Time	User Selectable ranging from 6, 30, 60, 90 seconds; user default 30 seconds
Sample Flow Required	200 to 750 mL/minute (3.1 to 11.9 gal/hour)
Storage Temperature	-20 to +60° C (-4 to 140° F)
Operating Temperature	0 to 50° C (32 to 122° F) for single sensor system, 0 to 40° C (32 to 104° F) for two sensor system
Operating Humidity	5 to 95% non-condensing
Sample Temperature	0 to 50° C (32 to 122° F)
Recorder Outputs	Two selectable for 0-20 mA or 4-20 mA. Output span programmable over any portion of the 0-100 NTU range; built into the sc100 Controller
Alarms	Three set-point alarms, each equipped with an SPDT relay with unpowered contacts rated 5A resistive load at 230 VAC; built into the sc100 Controller
Power Requirements	100-230 VAC, 50/60 Hz, auto selecting; 40 VA
Sample Inlet Fitting	1/4" NPT female, 1/4" compression fitting (provided)
Drain Fitting	1/2" NPT female, 1/2" hose barb (provided)
Enclosures	NEMA-4X/IP66 Controller
Digital Communications	Network card compatible; MODBUS/RS485, MODBUS/RS232, LonWorks® protocol (optional)
Wireless Communication	IR Port on the sc100 Controller to download into a handheld Personal Digital Assistant (PDA) or laptop computer via MODBUS
Compliance	Standard Methods 2130B, USEPA 180.1, Hach Method 8195
Certification	
Safety:	Listed by ETL to UL 61010A-1: Certified by ETL to CSA C22.2 No. 1010.1: CE certified by Hach Company to EN 61010-1
Immunity:	CE certified by Hach Company to EN61326 (industrial levels)
Emissions Class A:	EN 61326, CISPR 11, FCC Part 15, Canadian Interference-Causing Equipment Regulation ICES-003
Dimensions	Turbidimeter Body and Cap: 10 x 12 x 16 inches (25.4 x 30.5 x 40.6 cm) sc100 Controller: 5.67 x 5.67 x 5.91 inches (14.4 X 14.4 X 15.0 cm)
Mounting	Turbidimeter Body and Head Assembly: wall and floor stand sc100 Controller: wall, pole, panel, and floor stand
Shipping Weight	1720E Turbidimeter and sc100 Controller: 13.5 lbs. (6.12 kg) 1720E Turbidimeter: 10 lbs. (4.54 kg)

* Subject to change without notice.

** Defined according to ISO 15839.

Typical Proposal Specifications: 1720E Low Range Turbidimeter

GENERAL

The turbidity monitoring system shall include at least one Turbidimeter and one interface unit. The system shall be capable of functioning as a single sensor system and also be easily expanded up to two turbidimeters per interface unit. The connections between the turbidimeter and interface unit will include plug & play connections.

TURBIDIMETER

The turbidimeter shall measure turbidity in the range of 0.001-100 NTU and be a microprocessor-based, continuous-reading, on-line nephelometric instrument meeting all design and performance criteria specified by USEPA method 180.1. Light shall be directed through the surface of the sample and the detector shall be immersed in the sample, eliminating glass windows and flow cells. Optical components shall be mounted in a sealed head assembly that can be removed easily for calibration/service, without disturbing sample flow. The turbidimeter body shall be constructed of corrosion-resistant polystyrene, and shall include an internal bubble removal system to vent entrained air from the sample stream. The turbidimeter shall offer the choice of formazin-based (20 or 1 NTU) or instrument comparison-based calibration methods. Accuracy shall be ±2% of reading or ±0.015 NTU (whichever is greater) from 0 to 40 NTU; ±5% of reading from 40 to 100 NTU. Displayed resolution shall be 0.0001 NTU from 0 to 9.9999 NTU; 0.001 NTU from 10.000 to 99.999 NTU and repeatability shall be better than ± 1.0% of reading or ± 0.002 NTU (whichever is greater). User selectable signal averaging, bubble removal, alarm and recorder output hold, and self-test diagnostics shall be provided. All turbidimeters on the network shall have the option for MODBUS/RS232, MODBUS/RS485, LonWorks serial input/output capability for two-way communication to a computer or have wireless downloading capability through the IR Port located on the interface unit to download and print real-time turbidity data, calibration history, and current set points in a CSV format.

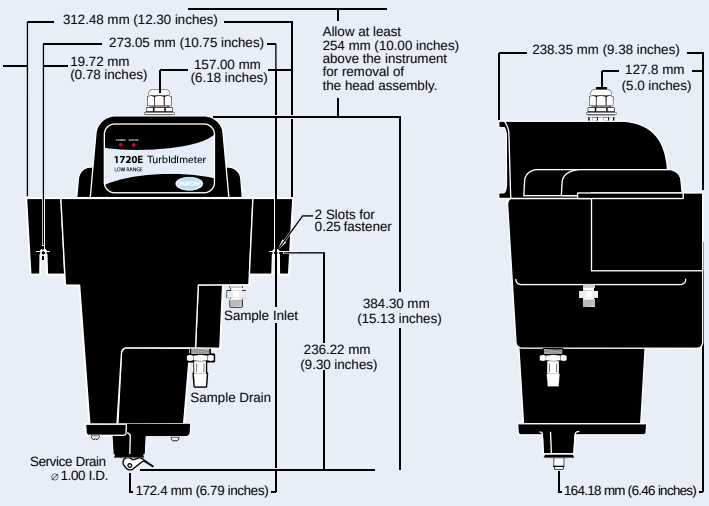
INTERFACE MODULE

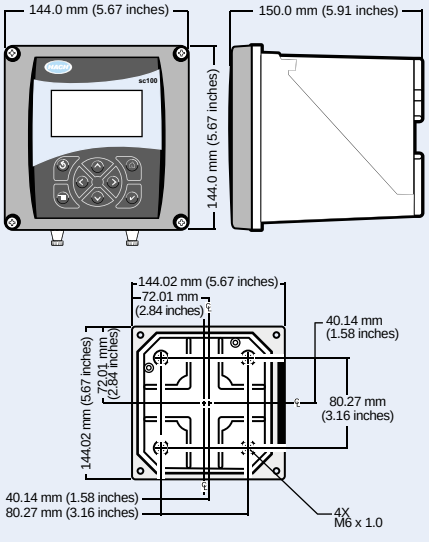
The Interface unit shall allow operators to control sensor and interface functions with user-friendly, menu-driven software, and shall provide data logging of measurement data from up to two turbidimeters for 15 minutes, 1 hour, 24 hours, 30 days, or 180 days and the capability to transfer data to a computer or printer via direct MODBUS communications or directly into a Personal Digital Assistant (PDA) via a wireless IR Port. The interface unit will also have a built-in data logger with the storage capacity to store data on 15-minute intervals for up to 6 months with two sensors per controller. Each interface will also include two analog outputs and 3 un-powered SPDT alarm contacts. The interface unit and the DC power supply shall be housed in a NEMA-4X (indoor) industrial metal/plastic enclosure, and the power supply shall automatically accept input in the range of 100 to 230 Vac, 50/60 Hz.

SAFETY AND ELECTRICAL DESIGN STANDARDS

All system components are ETL listed to UL 61010A-1, certified by ETL to CSA C22.2 No. 1010.1, and CE certified by manufacturer for safety to EN 61010-1. For EMC immunity and emissions, system components are CE certified by manufacturer to EN 61326 (industrial levels), for North America to FCC Part 15, and Canadian Interference-Causing Equipment Regulation ICES-003, and for rest of world to CISPR 11 Class A levels.

INSTALLATION





HOW TO ORDER

60101-00	1720E Turbidimeter with sc100 Controller
60101-01	1720E Turbidimeter, Sensor Only

1720E with DigitalDirect communications

60101-02	1720E/sc100 with MODBUS/RS485 output
60101-03	1720E/sc100 with MODBUS/RS232 output
60101-04	1720E/sc100 with LonWorks output

CABLES*

57960-00	25 ft. (7.7 M) Extension Cable
46306-00	Power Cord with Strain Relief (125 VAC)
46308-00	Power Cord with Strain Relief (230 VAC), European Style Plug

*Note: Power cables must be ordered separately.

OPTIONAL ACCESSORIES
ICE-PIC Verification Module/1720E:

52250-00	20 NTU
52215-00	1 NTU

STABLCAL COMPARATIVE CALIBRATION STANDARDS (for 1720E, 1720D, and 1720C Turbidimeters)***

26601-53	20.0 NTU, 1 L each

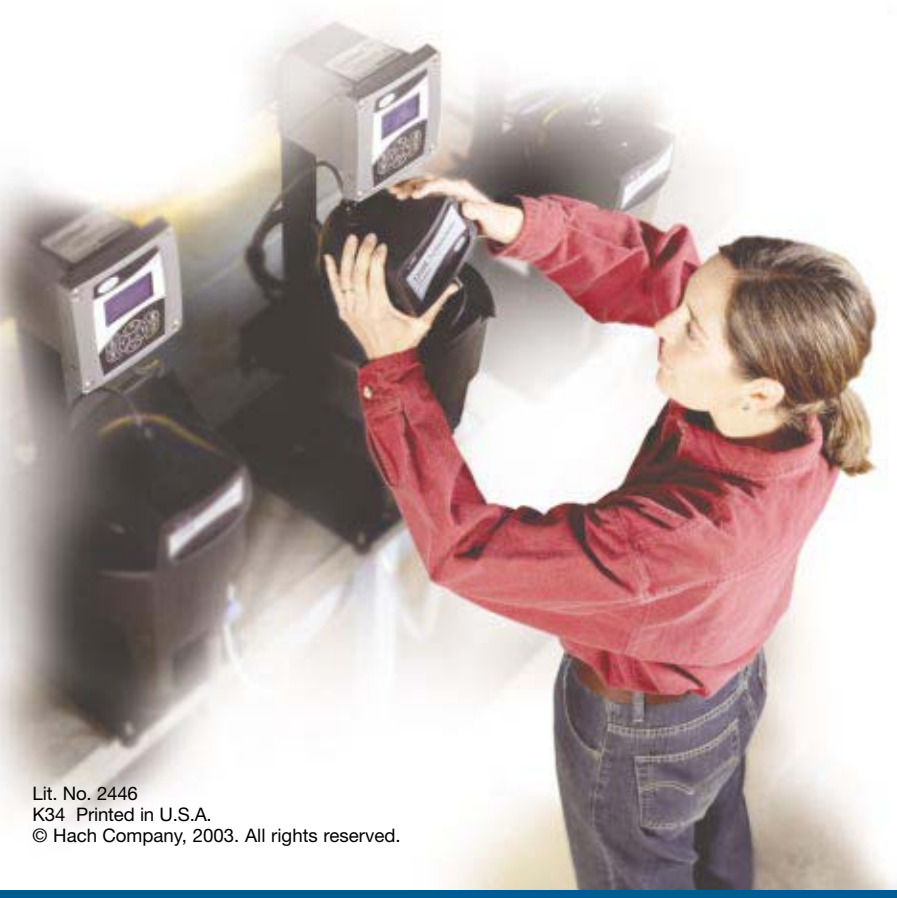
*** Note: Calibration Cylinder must be ordered separately.

STABLCAL VERIFICATION STANDARDS

26598-53	1.0 NTU, 1 L each
27463-53	40.0 NTU, 1 L each
26979-53	0.3 NTU, 1 L each
26980-53	0.5 NTU, 1 L each
27233-53	0.1 NTU, 1 L each

FORMAZIN CALIBRATION STANDARDS

44156-00	Formazin Calibration Kit for user-prepared calibration includes 4000 NTU Formazin, (500 mL), TenSette® Pipet, and Calibration Cylinder
2461-49	Formazin Primary Standard, 4000 NTU, 500 mL, replacement for kit #44156-00
44153-000	Calibration Cylinder, 1L
57432-00	Floor Stand



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At Hach, it's about learning from our customers and providing the right answers. It's more than ensuring the quality of water – it's about ensuring the quality of life. When it comes to the things that touch our lives...

Keep it pure.

Make it simple.

Be right.

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

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