# TU5 SERIES TURBIDIMETERS

**Applications**

- Drinking water
- Power
- Beverage
- Pharmaceutical


## The next standard in the evolution of turbidity

Only the new TU5 Series Lab & Process Turbidimeters with 360° x 90° Detection deliver unprecedented confidence that a change in your reading is a change in your water.

### Groundbreaking 360° x 90° Detection Technology

The TU5 Series employs a unique optical design that sees more of your sample than any other turbidimeter, delivering the best low level precision and sensitivity while minimising variability from test to test.

### Matching lab and online results

For the first time you will be able to remove the uncertainty of which measurement to trust, thanks to identical 360° x 90° Detection Technology in both instruments.

### Everything about turbidity – faster

The TU5 Series dramatically reduces the time needed to get a turbidity measurement you can rely on, with 98% less online sample surface area to clean, sealed vials for calibration, and the elimination of the need for indexing and silicone oil in the lab. Not to mention, a smaller online sample volume means you will detect events almost immediately.

### No surprises

Prognosys monitors your TU5 Series online instrument, proactively alerting you to maintenance needs before your measurement becomes questionable. And a Hach Service Agreement protects your investment and helps ensure that you stay in compliance and on budget.

*USEPA and ISO 7027 reporting: The TU5 Series Turbidimeters apply the instrument design and meet performance criteria established by EPA Approved Hach Method 10258 and ISO 7027-1:2016, making them suitable for regulatory reporting.*

HACH®

Be Right™

# Technical Data*

## TU5200

| | |
|---|---|
| **Light source** | Class 2 laser product, with embedded 650 nm (EPA 0.43 mW) or Class 1 laser product, with embedded 850 nm (ISO), max. 0.55 mW (complies with IEC/EN 60825-1 and to 21 CFR 1040.10 in accordance with Laser Notice No. 50) |
| **Measuring range** | EPA:<br>0 - 700 NTU / FNU / TE/F / FTU<br>0 - 100 mg/L<br>0 - 175 EBC<br><br>ISO:<br>0 - 1000 NTU / FNU / TE/F / FTU<br>0 - 100 mg/L<br>0 - 250 EBC |
| **Accuracy** | ±2 % plus 0.01 NTU from 0 - 40 NTU;<br><br>±10 % of reading from 40 - 1000 NTU based on Formazin primary standard (at 25 °C) |
| **Resolution** | 0.0001 NTU / FNU / TE/F / FTU / EBC / mg/L |
| **Repeatability** | <40 NTU: Better than 1% of reading or ±0.002 NTU on Formazin at 25 °C, whichever is greater<br><br>>40 NTU: Better than 3.5% of reading on Formazin at 25 °C |
| **Stray light** | <10 mNTU |
| **Units** | NTU, FNU, TE/F, FTU, EBC; mg/L if calibrated with Degrees calibration curve |
| **Operating temperature range** | 10 - 40 °C |
| **Operating humidity** | 80% at 30 °C (non condensing) |
| **Sample temperature** | 4 - 70 °C |
| **Storage conditions** | -30 - 60 °C |
| **Power requirements (Voltage)** | 100 - 240 V AC |
| **Power requirements (Hz)** | 50/60 Hz |
| **Certifications** | CE compliant<br><br>US FDA accession number: 1420493-000 EPA version, 1420492-000 ISO version<br><br>Complies with IEC/EN 60825-1 and to 21 CFR 1040.10 in accordance with Laser Notice No. 50)<br><br>Australian ACMA Marking |
| **Dimensions (H x W x D)** | 195 mm x 409 mm x 278 mm |
| **Weight** | 2.4 kg |
| **Warranty** | 2 years |

## TU5300 sc / TU5400 sc

| | |
|---|---|
| **Light source** | Class 2 laser product, with embedded 650 nm (EPA 0.43 mW) or Class 1 laser product, with embedded 850 nm (ISO), max. 0.55 mW (complies with IEC/EN 60825-1 and to 21 CFR 1040.10 in accordance with Laser Notice No. 50) |
| **Measuring range** | EPA:<br>0 - 700 NTU / FNU / TE/F / FTU<br>0 - 100 mg/L<br>0 - 175 EBC<br><br>ISO:<br>0 - 1000 NTU / FNU / TE/F / FTU<br>0 - 100 mg/L<br>0 - 250 EBC |
| **Accuracy** | ±2% or 0.01 NTU from 0 - 40 NTU<br><br>±10% of reading from 40 - 1000 NTU based on Formazin primary standard |
| **Resolution** | 0.0001 NTU / FNU / TE/F / FTU / EBC |
| **Repeatability** | Better than 1% of reading or ±0.002 NTU (TU5300) or ±0.0006 NTU (TU5400) on Formazin at 25 °C, whichever is greater |
| **Stray light** | <10 mNTU |
| **Units** | NTU, FNU, TE/F, FTU, EBC |
| **Signal average time** | 5 - 90 seconds |
| **Response time** | T90 <30 seconds at 100 mL/min |
| **Sample temperature** | 2 - 60 °C |
| **Sample pressure** | 6 bar maximum, compared to air at sample temperature range from 2 - 40 °C |
| **Flow rate** | 100 - 1000 mL/min; optimal flow rate: 200 - 500 mL/min |
| **Operating temperature range** | 0 - 50 °C |
| **Operating humidity** | Relative humidity: 5 - 95% at different temperatures, non-condensing |
| **Storage conditions** | -40 - 60 °C |
| **Certifications** | CE compliant<br><br>US FDA accession number: 1420493-000 EPA version, 1420492-000 ISO version<br><br>Complies with IEC/EN 60825-1 and to 21 CFR 1040.10 in accordance with Laser Notice No. 50)<br><br>Australian ACMA Marking |
| **Dimensions (H x W x D)** | 249 mm x 268 mm x 190 mm |
| **Weight** | 2.7 kg (5.0 kg with all accessories) |
| **Warranty** | 2 years |

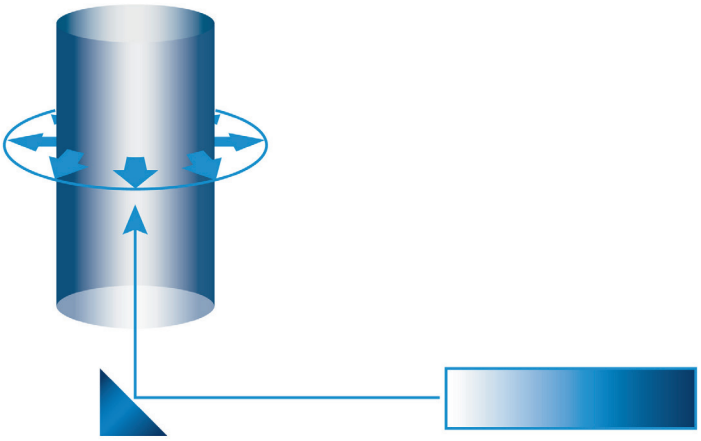
**Subject to change without notice.*

## Principle of Operation

The TU5 Series turbidimeters measure turbidity by directing a laser into a sample to scatter off suspended particles. The light that is scattered at a 90° angle from the incident beam is reflected through a conical mirror in a 360° ring around the sample before it is captured by a detector.

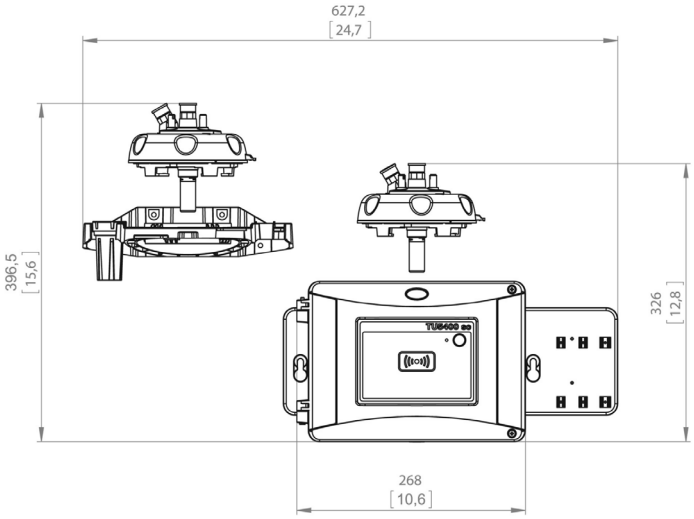
The amount of light scattered is proportional to the turbidity of the sample. If the turbidity of the sample is negligible, little light will be scattered and detected by the photocell and the turbidity reading will be low. High turbidity, on the other hand, will cause a high level of light scattering and result in a high reading.

The 360° x 90° optics of the TU5 series were optimised for high accuracy at low turbidity ranges and therefore the TU5 does not include ratio technology. Ratio technology is only applicable for high turbidity applications which have interference from colour and large particles.

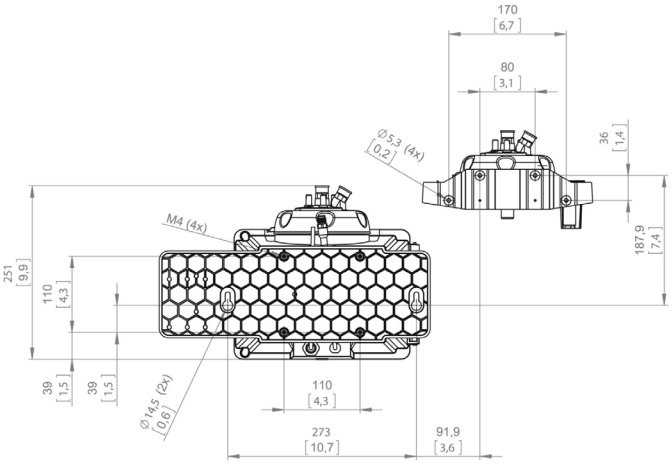


## Dimensions

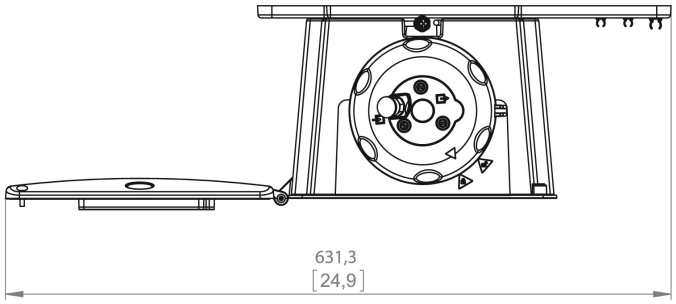
*TU5300 sc and TU5400 sc front view*



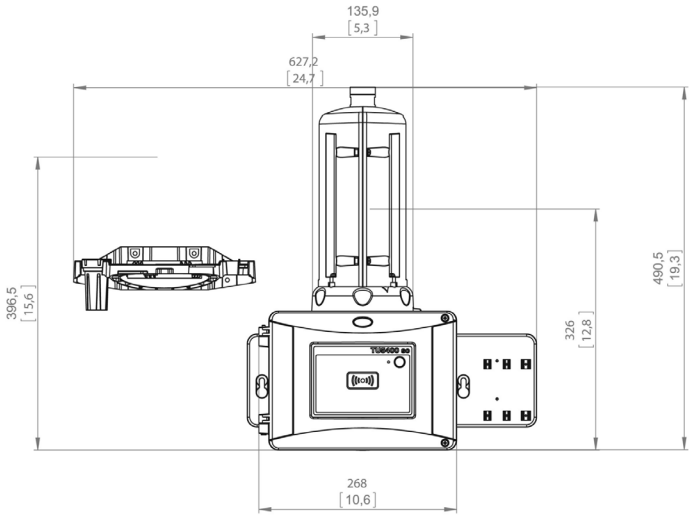

*TU5300 sc and TU5400 sc rear view*




*TU5300 sc and TU5400 sc top view*




*TU5300 sc and TU5400 sc with automatic cleaning module*



# Order Information

## TU5200 Benchtop Laser Turbidimeters

**LPV442.99.03012** TU5200 Benchtop Laser Turbidimeter with RFID, EPA Version

**LPV442.99.01012** TU5200 Benchtop Laser Turbidimeter without RFID, EPA Version

**LPV442.99.03022** TU5200 Benchtop Laser Turbidimeter with RFID, ISO Version

**LPV442.99.01022** TU5200 Benchtop Laser Turbidimeter without RFID, ISO Version

## TU5300 sc/TU5400 sc Online Laser Turbidimeters

**LXV445.99.10122** TU5300 sc Low Range Laser Turbidimeter, ISO Version

**LXV445.99.10222** TU5400 sc Ultra-High Precision Low Range Laser Turbidimeter, ISO version

**LXV445.99.53122** TU5300 sc with flow sensor, automatic cleaning, RFID, and system check, ISO version

**LXV445.99.53222** TU5400 sc with flow sensor, automatic cleaning, RFID, and system check, ISO version

*Please note: Other turbidimeter configurations are available and RFID may not be available in all areas. Please contact your local Hach representative.*

*Please note: An SC controller is required for operation of the TU5300 sc or TU5400 sc.*

## Calibration and Verification

**LZY835** StablCal calibration set with RFID

**LZY898** StablCal calibration set without RFID

**LZY901** Glass rod secondary turbidity standard <0.1 NTU/FNU

**LZY834** Replacement vial for TU5300 sc and TU5400 sc

**LZV946** Sample vials for TU5200

## TU5 Series Accessories

**LQV159.98.00002** Automatic cleaning module for TU5300 sc and TU5400 sc

**LQV160.99.00002** Flow sensor for TU5300 sc and TU5400 sc

**LZY876** Desiccant cartridge for TU5300 sc and TU5400 sc

**LZY907.98.00002** Maintenance kit for TU5300 sc and TU5400 sc

**LQV157.99.50002** SIP10 sipper unit for TU5200

**LZY903** Manual vial wiper for TU5200, TU5300 sc, and TU5400 sc

## Service Packages

**Start-Up:**

Commissioning, Instruction and Training of your operating personnel to ensure you get the best performance from your instrumentation from the first day you use it.

**Service Agreement:**

Hach offers a wide range of service agreements that can be tailored to you to help maximise your measurement reliability and instrument uptime.

*Contact us to get a service offering designed for you.*

DOC050.52.10053.Mar17