

1.5 Turbidity Measuring Points DULCOTEST®

1.5.1

Turbidity Measuring Point DULCOTEST® DULCO® turb C

**Reliable on-line measurement of turbidity with DULCOTEST® DULCO® turb C measuring points
Measuring range 0 – 1,000 NTU**



Turbidity measurements with DULCOTEST® DULCO® turb C: Compact measuring instrument that uses light scatter to measure turbidity, with a large measuring range and different designs to comply with ISO and EPA standards. Available with or without automatic cleaning.

The DULCOTEST® measuring points for turbidity in the DULCO® turb C range with versions TUC 1, TUC 2, TUC 3 and TUC 4, are compact online turbidity measuring points, consisting of a sensor, inline flow fitting and measuring device. The measuring device permits the measured value to be displayed, calibration, transmission of the measured value via a 4-20 mA signal and the indication of limit value transgressions and device faults. The measuring cuvette integrated in the measuring device enable the device to operate in the bypass of the process line. The visual measuring unit does not come into contact with the sample medium.

The intended application is the treatment of potable water, with the DULCO® turb C able to be used in all treatment stages of raw water, from filter monitoring to measurement of fine turbidity in dispensed potable water. It is also possible to monitor the turbidity of slightly contaminated process water and waste water, as well as treated water from the food and beverage industry up to a turbidity value of 1,000 NTU. Compared with the TUC 1/TUC 2, the TUC 3 / TUC 4 measuring stations include an ultrasound-based self-cleaning function. This helps in particular to extend the service intervals particularly when used with the types of water that form films.

The measuring principle is identical to light scatter measurements. The light beam that is beamed into the measuring cuvette filled with sample water is dispersed on turbidity particles and the scattered light is measured at right angles (90°) to the beamed in light (Nephelometric measurement). The measuring unit for the turbidity measurement can be given as NTU (Nephelometric Turbidity Unit) or as FNU (Formazin Nephelometric Unit). The measuring process of types TUC 1/TUC 3 (infrared light) corresponds to the globally applicable standard ISO 7027 and the European Standard DIN EN 27027. The measuring process of types TUC 2/TUC 4 (white light) corresponds to the US American standard USEPA 180.1.

Your benefits

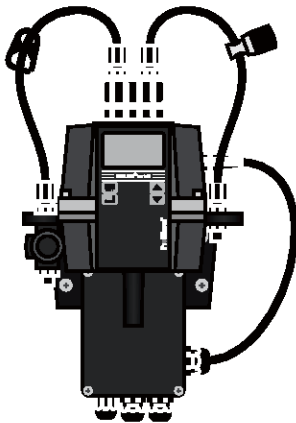
- Compact turbidity measuring station with integrated sensor, flow cuvette and measuring instrument saves space and is simple to install and operate.
- High dynamic measuring range between 0.02 and 1,000 NTU permits broad-based use in all stages of potable water treatment. Also ideal for monitoring waste water from clarification plants and for monitoring ruptures with filters.
- Short response times thanks to small-volume measuring cuvette.
- Long-term stable measurements, even in contaminated water, by the optional ultrasonic cleaning of the measuring cuvette.
- Fast and simple calibration on site by optionally available, pre-assembled and time-stable calibration standards.

Technical Details

- The measuring process in types TUC 1/TUC 3 (infrared light) corresponds to the global standard ISO 7027 and the European standard DIN EN 27027.
- The measuring process in types TUC 2/TUC 4 (white light) corresponds to the US standard USEPA 180.1.

Field of application

- Potable water treatment, for all treatment steps: from raw water and filter monitoring to measuring fine turbidity in the potable water that is to be discharged
- Monitoring of turbidity in slightly polluted industrial water, waste water and water requiring treatment in the food and beverage industry up to a turbidity value of 1,000 NTU



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Technical Data

Measurement range	0 ... 1,000 NTU
Accuracy	± 2% of the displayed value or ± 0.02 NTU below 40 NTU, depending on which value is the greater ± 5% of the displayed value above 40 NTU
Resolution	0.0001 NTU below 10 NTU
Response time	Configurable
Display	Multiple row LCD display with background lighting
Alarm relay	Two programmable alarms, 120-240 VAC, 2 A Form C relay
Output signal	4 ... 20 mA, 600 Ω, not electrically isolated: dual-isolated, degree of interference, overvoltage category II
Communication interface	Bi-directional RS-485, Modbus
Max. pressure	Integrated pressure regulating valve regulates 1380 kPa (200 psi), based on the flow rate
Flow	6 – 60 l/h
Temperature	1 ... 50 °C
Materials in contact with the medium	Polyamide (PA), silicone, polypropylene (PP), stainless steel, borosilicate glass
Voltage supply	100 – 240 VAC, 47 – 63 Hz, 80 VA
Hydraulic connector	Black tube, inside 4.75 mm, outside 8 mm
Ambient conditions	Not suitable for operation outdoors. Maximum operating altitude 2000 m above sea level. Maximum 95% relative air humidity (non-condensing).
Enclosure rating	IP 66, NEMA 4x
Standard	ISO 7027 or DIN EN 27027 with the "Infrared" version, USEPA 180.1 with the "Achromatic light" version
Dimensions H x W x D	35 x 30 x 30 cm
Shipping weight	2.5 kg

	Standard	Ultrasonic cleaning	Order no.
TUC 1	Infrared light: ISO 7027, DIN EN 27027	No	1037696
TUC 2	White light: US EPA 180.1	No	1037695
TUC 3	Infrared light: ISO 7027, DIN EN 27027	Yes	1037698
TUC 4	White light: US EPA 180.1	Yes	1037697

Spare Parts

	Order no.
Drying agent	1037701
TUC 1/TUC 2 cuvette (set with 3 no.)	1037877
Cuvette TUC 3 / TUC 4	1037878
Infrared lamp TUC 1 / TUC 3	1037702
Achromatic light lamp TUC 2 / TUC 4	1037703
Hose kit	1037879
Pressure regulating valve	1037885

Accessories

	Order no.
Calibration set	1037699
Flow control	1037880
Air bubble trap	1037700

