

TSS sc Suspended Solids Probes

Applications

- Drinking Water
- Power
- Pure Water Applications
- Environmental Monitoring



Measures online suspended solids in virtually all applications under the strictest regulatory conditions

TSS sc probes measure online suspended solids from spring water to corrosive chemicals under the strictest regulatory conditions. With 8 different probe models with several mounting options, it is possible to measure suspended solids over a wide range of concentrations with just one probe.

Unique Multi-Beam Pulsed Infrared Light System

TSS sc probes have a double optical system with two pulsating infrared LEDs and four receivers. This combined multiple beam alternating light method with beam focusing facilitates accurate color independent measurement of turbidity from 0.001 to 4,000 FNU and suspended solids from 0.001 to 500 g/L.

Automatic Compensation for Air Bubbles and Temperature Swings for Accuracy

Special software gives the system the ability to recognize gas bubbles or temperature swings for a more accurate suspended solids or turbidity measurement.

Standard-Compliant and Precise with Easy Calibration

The turbidity measurement complies with the standard DIN EN 27027 (ISO 7027). Calibration is not necessary. If the probe is used to measure the solids content, a one-point calibration suffices. For special applications, curves can be defined using several calibration points.

Withstands Difficult Conditions and Harsh Environments

Probes are made of highly polished stainless steel or titanium with a scratch resistant sapphire window. They are designed to withstand harsh environments and keep particles from sticking to the surface.

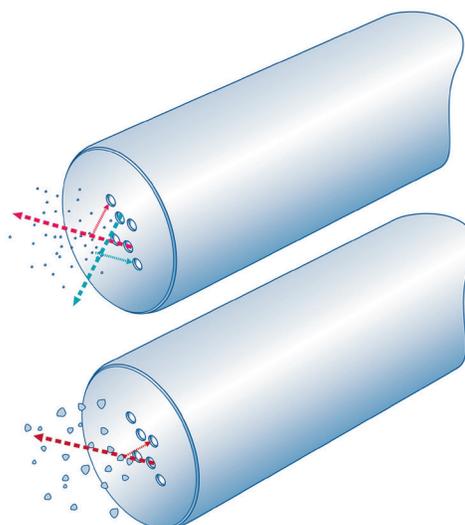
Technical Data*

Models	TSS sc TSS W sc TSS HT sc TSS Vari sc TSS XL sc TSS EX1 sc TSS Titanium2 sc TSS Titanium7 sc	Calibration	Turbidity (TRB): Factory calibrated Solids (TS): To be calibrated by customer on site Zero point: Permanently calibrated in the factory
Mounting Configurations	Tank-side, Triclamp, Inline, Varivent measuring tube, XL measuring tube	Pressure Range	< 6 bar: TSS W sc < 10 bar: TSS sc, TSS HT sc, TSS Titanium2 sc, TSS Titanium7 sc ≤ 10 bar: TSS EX1 sc < 16 bar: TSS Vari sc, TSS XL sc
Measurement Method	Combined multiple beam alternating light method with infrared diode system and beam focusing Turbidity (TRB): 2-channel 90° scattered light measurement in accordance with DIN EN ISO 7027, wavelength = 860 nm Solids (TSS): 90° and 120° scattered light measurement, wavelength = 860 nm	Ambient Temperature	0 - 50 °C: TSS W sc 0 - 60 °C: TSS sc, TSS Titanium2 sc, TSS Titanium7 sc 0 - 80 °C: TSS Vari sc, TSS XL sc 0 - 90 °C: TSS HT sc -10 - 50 °C: TSS EX1 sc
EExp / Hazardous Location	Class I Div 2 certified (TSS EX1 sc only)	Dimensions	Tank-side models, installation sensor Inline models: 330 mm x 40 mm (L x D) Installation sensor Triclamp models: 332 mm x 40 mm (L x D) TSS Vari sc, TSS XL sc: 232 mm x 40 mm (L x D)
Range	Turbidity (TRB): 0.001 - 9999 NTU Solids (TSS): 0.001 - 500 g/L	Weight	Tank-side models, installation sensor Inline/Triclamp models: approx. 1.6 kg TSS Vari sc, TSS XL sc: approx. 1.5 kg TSS EX1 sc: approx. 2.7 kg
Accuracy	Turbidity: Up to 1000 FNU/NTU: < 5 % of measurement value or ±0.01 NTU, whichever is greater	Controller Compatibility	SC200, SC1000
Repeatability	Turbidity (TRB): < 3% Solids (TSS): < 4%		
Response Time	1 s < T90 < 300 s (adjustable)		

*Subject to change without notice.

Principle of Operation

The Hach TSS sc probes have a double optical system with two pulsating infrared LEDs and four receivers. As the transmitted light is scattered, the receivers pick up the incident light at 90° and 120° angles effectively doubling the accuracy of the instrument. This eight channel measurement system, with an integrated bubble and temperature compensating software, enables the instrument to have a wide measuring range that effectively covers most applications, from the darkest pre-treated water to the freshest of spring waters, with one instrument.



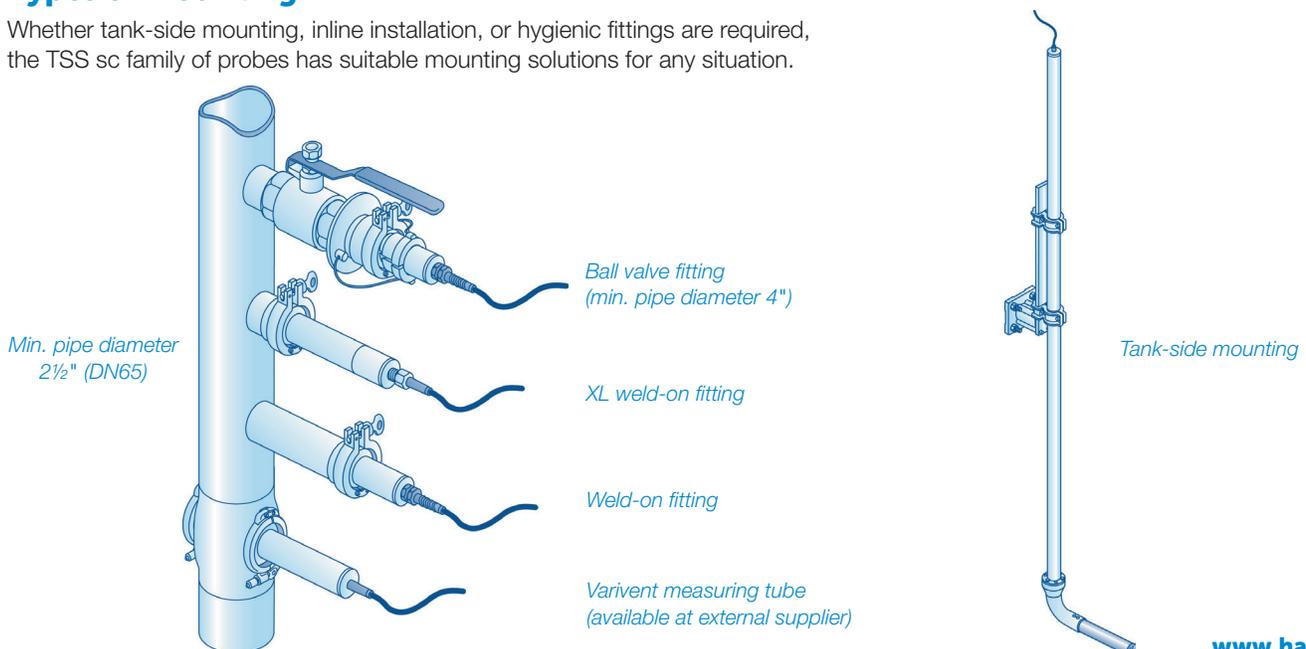
Overview Probes and Mounting Options*

Model	Type of mounting	Description	Part number
Stainless steel			
TSS sc	Tank-side mounting	All purpose standard probe for turbidity and suspended solids measurement.	LXV323.99.10002
	Weld-on fitting	All purpose probe with Triclamp.	LXV323.99.20002
	Ball valve fitting	All purpose probe for simple inline installation.	LXV323.99.30002
TSS W sc	Tank-side mounting	All purpose probe with wiper to ensure a clear view. For use in high solids environments.	LXV324.99.10002
	Weld-on fitting	All purpose probe with wiper, with Triclamp.	LXV324.99.20002
	Ball valve fitting	All purpose probe with wiper for simple inline installation.	LXV324.99.30002
TSS HT sc	Tank-side mounting	Turbidity and suspended solids probe for use in high temperature environments of up to 90 °C and 95 °C for short intervals.	LXV325.99.10002
	Weld-on fitting	High temperature probe with Triclamp.	LXV325.99.20002
	Ball valve fitting	High temperature probe for simple inline installation.	LXV325.99.30002
TSS Vari sc	Varivent measuring tube <i>(available at external supplier)</i>	Turbidity and suspended solids probe for colour-independent measurement of highly concentrated sludges. This probe connects to Varivent piping systems.	LXV326.99.10002
TSS XL sc	XL weld-on fitting	Turbidity and suspended solids probe for colour-independent measurement of highly concentrated sludges. This probe connects to Triclamp piping systems.	LXV327.99.10002
TSS EX1 sc	Tank-side mounting	Turbidity and suspended solids probe designed for use in hazardous locations (Class I Div 2).	LXV328.99.10002
	Ball valve fitting	Turbidity and suspended solids probe designed for use in hazardous locations (Class I Div 2) with Triclamp.	LXV328.99.20002
	Ball valve safety fitting	Turbidity and suspended solids probe designed for use in hazardous locations (Class I Div 2) for simple inline installation.	LXV328.99.30002
Titanium			
TSS Titanium sc	User defined	Turbidity and suspended solids Titanium2 probe for use in aggressive or corrosive environments.	LXV329.99.10002
	User defined	Turbidity and suspended solids Titanium2 probe with Triclamp for simple inline installation and quick access for maintenance.	LXV329.99.20002
TSS Titanium7 sc	User defined	Turbidity and suspended solids Titanium7 probe for use in brine, seawater, or high salinity environments.	LXV330.99.10002
	User defined	Turbidity and suspended solids Titanium7 probe with Triclamp for simple inline installation and quick access for maintenance.	LXV330.99.20002

*Subject to change without notice.

Types of mounting

Whether tank-side mounting, inline installation, or hygienic fittings are required, the TSS sc family of probes has suitable mounting solutions for any situation.



Order Information

Mounting Hardware

LZY714.99.53120	Stainless steel pole mounting hardware for TSS sc probes, including 10 cm bracket and 2 m pole with 90° adapter
LZU300.99.00000	Ball valve armature for TSS sc Triclamp
LZY630.00.10000	Ball valve armature for TSS sc, TSS W sc, and TSS HT sc inline probes including non-coped stainless steel welding flange LZX660
LZY630.00.11000	Ball valve armature for TSS sc, TSS W sc, and TSS HT sc inline probes including non-coped carbon steel welding flange LZX661
LZY630.00.12000	Ball valve armature for TSS sc, TSS W sc, and TSS HT sc inline probes without welding flange
LZY630.00.20000	Ball valve safety armature for TSS EX1 sc Inline probe including non-coped stainless steel welding flange LZX660
LZY630.00.21000	Ball valve armature for TSS EX1 sc Inline probe including non-coped carbon steel welding flange LZX661
LZY630.00.22000	Ball valve armature for TSS EX1 sc inline probe without welding flange
LZX660	Non-coped stainless steel welding flange for insertion kit
LZX661	Non-coped carbon steel welding flange for insertion kit
LZY441	Hand wheel for ball valve inline armature
LZY462	Gasket for mounting flange of ball valve inline armature

Welded Branch Pieces

LZU302.99.00000	Welded branch piece raw for all TSS sc Triclamp probes
LZU302.99.10000	Welded branch piece raw for TSS XL sc probes
LZU303.99.00000	Screwed branch piece for all TSS XL sc Triclamp probes

Accessories

LZY634	Wiper set TSS sc (for 5 changes with screws and screwdriver)
LZY635	Maintenance set wiper (consisting of wiper, wiper axis 2-parts and gaskets)
LZY653	Gasket Silicon for Triclamp mounting
LZY654	Gasket PTFE for Triclamp mounting
LZY655	Gasket FPM for Triclamp mounting
LZY656	Clamp 2-parts, with screw type clamp for Triclamp mounting
LZY657	Clamp 3-parts, with screw type clamp for Triclamp mounting (to use with PTFE gasket)

Be confident with Hach Service

Start-Up/Commissioning: Our service technicians visit your site and setup instrumentation, provide basic end-user training on operations and maintenance, and validate settings and performance to get you started.

Service Agreement: Hach provides on-site and in-factory repair, preventive maintenance, and calibration programs for your instruments to ensure reliability and instrument up-time. We have services to fit your specific needs.

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