

MARKLAND'S SUSPENDED SOLIDS DENSITY METER

THE MARKLAND ADVANTAGE:

Stay informed with real-time readings of silt, sludge and slurry concentrations

- Ideal for clarifiers, open-top tanks, pipes and recirculation loops.

No permits / No approvals required

- Ultrasonic non-nuclear sensors are inherently safe.

Readings are not affected by the colour of fluid or particulates

- Monitor Total Suspended Solids (TSS) even in thick concentrations.

Facilitate calculation of Solids Mass Flow

- Continuously measure, monitor & control the percentage of suspended solids.

Help optimize polymer / chemical dosing and thickener equipment variables

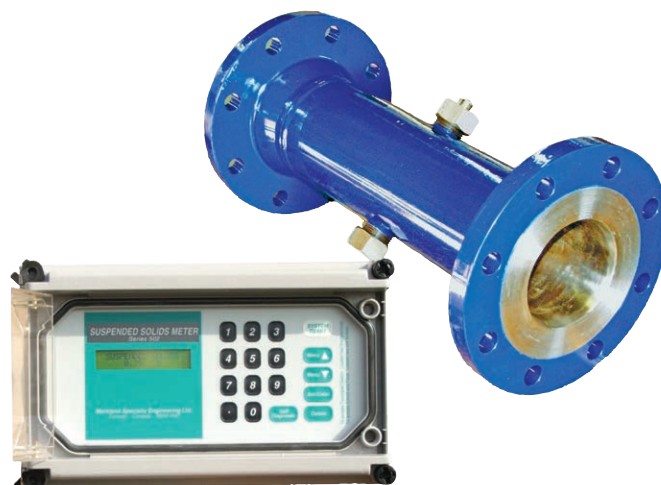
- Automate pumps to maintain preferred density.
- Help reduce material and energy costs.

Automate underflow pumps

- Fine tune sludge density; avoid pumping thin sludge; reduce wear-and-tear on pumps; improve outflow available for reuse.

Ensure meters will work in your unique sludge or slurry

- Samples tested free of charge.



FEATURES

- Available in two styles:
 - » non-intrusive inline TSS sensor
 - » throw-in TSS probe
- Easy set-up & push-button calibration
- Simple high & low set-point adjustment
- Automatic dynamic damping
- Advanced self-diagnostics

NOTE: The Suspended Solids Density Meter cannot be used in aerated or heavily gassing slurries

APPLICATIONS

Measuring, monitoring & controlling the concentration of diverse suspended solids:

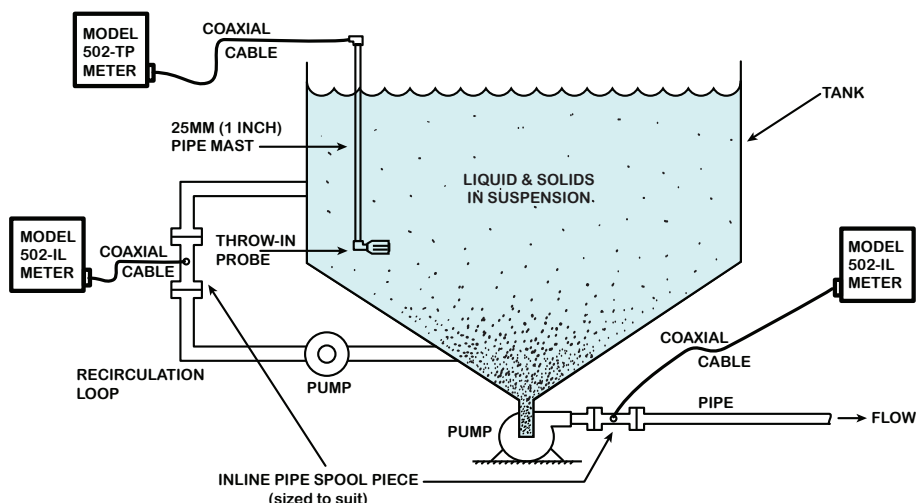
- Primary, secondary & return-activated sludge
- Drinking water plant sludge
- Hydroxide sludges
- Metal finishing sludge
- Manure for methane gas generation of electricity
- Clay & silica slurries
- Lime slurries for softening water in drinking water plants
- Resins
- Backwash sludge from sand or membrane filters
- Nano & micro particles ... and more!

MARKLAND
Specialty Engineering Ltd

*Serving the water, wastewater and
process industries since 1967*
www.sludgecontrol.com

MARKLAND SUSPENDED SOLIDS DENSITY METER

HOW IT WORKS

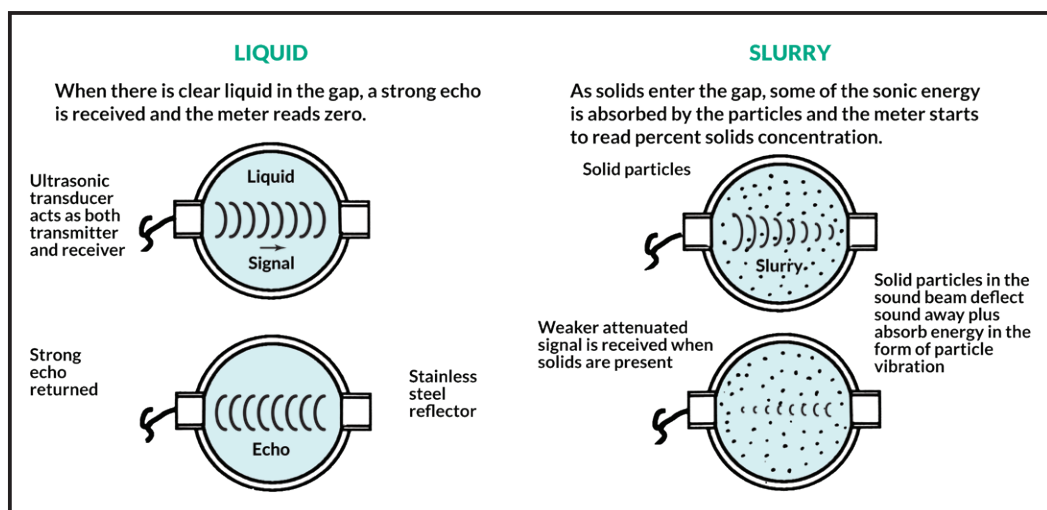


Markland's Suspended Solids Density Meter uses the attenuation of ultrasound to measure silt, sludge and slurry concentrations, and operates in the region between turbidity meters and nuclear gauges.

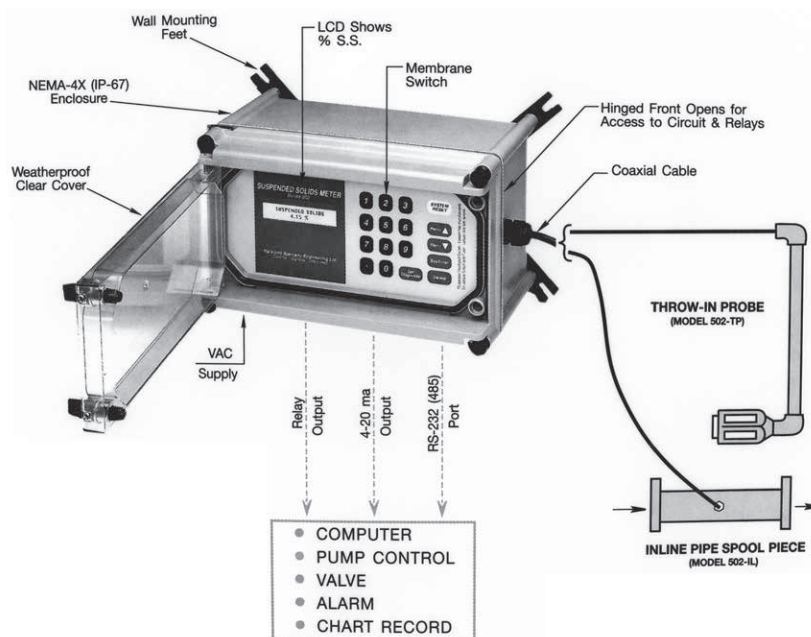


The Meter's microcontroller continuously fires a transducer, sending an ultrasonic pulse across a gap in the Meter's probe to a reflector located directly opposite. The reflector sends an echo back to the transducer. When only clear liquid is in the gap, a strong echo is received, and the Meter reads zero. As solids enter the gap, the particles create an attenuated signal as they deflect the sound beam plus absorb energy in the form of particle vibration. The TSS analyzer interprets the received echo based upon calibration parameters to calculate the percent suspended solids. These continuous real-time measurements are displayed on the LCD.



Calibration is a simple push-button procedure, accomplished by filling the pickup head with water and pushing a button on the membrane to automatically calibrate zero. Then the pickup head is filled with a known concentration and that %SS value is entered as well. If a sample has been withdrawn for analysis, and the actual concentration is not known until a lab test result is received, the Meter holds a partial calibration and waits for the actual concentration to be entered later. Calibration parameters are locked in memory, and are permanently retained, even during extended power failures.



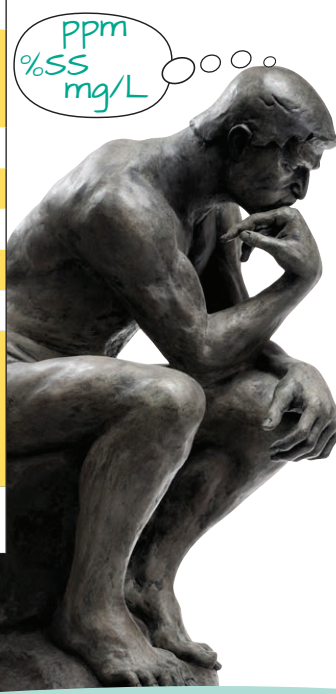
MARKLAND SUSPENDED SOLIDS DENSITY METER CONTROLLER



TECHNICAL SPECIFICATIONS

Range	0.1% (1000 mg/L) to 15% (150,000 mg/L) solids by weight, approximate. Exact range depends upon the sonic attenuation of the particular sludge and the length of the sound path. Contact factory for technical support or No Charge testing of your particular material.	
Accuracy	±1000 mg/L to 5% of full scale (depends on sonic attenuation of particular slurry)	
Linearity	Varies in different materials. Maximum non-linearity at mid-range is usually within 5% of full scale reading	
Power	110/120 VAC, 220/240 VAC, 50/60 Hz (advise with order). 15 watts	
Temperature	Liquid: 1°C to 50°C · Controller: -20°C to 50°C	
Pressure	60 p.s.i.g. (4bar) 400 kpa	
Outputs	<ul style="list-style-type: none"> Liquid Crystal Display (LCD) 2×20 Digit Alphanumeric 4 – 20 ma output signal, linear with %SS Two DPDT, 5 Amp Relays, independently adjustable set-points 	
Calibration	Push-button, Automatic in water (zero) and in known %SS concentration	
Damping	Automatic Variable Dynamic Damping	
Response Time	1 to 30 sec. depending on damping	
Cable(s)	15 metres (50 feet) coaxial cable pigtail(s)	
Enclosure	NEMA 4X (IP-67) Width: 343mm (13½") · Height: 229mm (9") · Depth: 200mm (7⅞")	
Dimensions & Materials	Model 502-IL Flanged steel spool piece pickup head, overall length 458mm (18"). Flange type, pipe diameter and material to suit pipeline.	Model 502-TP PVC probe cage head with stainless steel trim, 150mm (6") offset from vertical mast. 1" Sch. 80 pipe mast x 4 metres (12 feet) long supplied with two stainless steel mounting clamps.
Approvals	 	

**Maintain your
CONCENTRATION!**



MARKLAND'S FAMILY OF PROCESS CONTROL INSTRUMENTATION

Markland Specialty Engineering has been designing and manufacturing ultrasonic and optical instrumentation that helps measure, monitor, and automate control in the water, wastewater and process industries since 1967. Orders are followed by quick delivery, and prompt product support is always available.

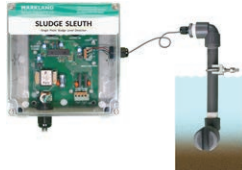
Sludge Gun® Portable Sludge Blanket Level Detector

Measure liquid-solids interface levels in clarifiers, septic tanks, ponds, and even murky lagoons. Facilitate monitoring for regulatory compliance and determining optimal times for pumping/dredging. Convenient thumbwheel adjusts the optical sensitivity. Compact and weatherproof.



Sludge Sleuth™ Single Point Sludge Level Detector

Single point monitoring & automatic control of settled bed depth in gravity settlers, decanting tanks, DAF units, SBRs, sumps, pits - even inclined plate clarifiers. Adjustable solids concentration set-point helps optimize equipment performance & reduce energy/haulage costs.



Suspended Solids Density Meter

Know real-time silt, sludge & slurry concentrations in clarifiers, tanks & pipes. Automate pumps to maintain preferred density. Help fine-tune dosing & thickener variables. Ultrasonic sensor needs no permits/ no approvals, measuring %S.S. even in thick concentrations. Readings are unaffected by color. Choose non-intrusive spool piece or throw-in probe.



Automatic Sludge Blanket Level Detector

Track liquid-solids interface levels in water, wastewater & process slurries, even in constricted areas. Program pumps to operate only when necessary. Help prevent process upsets. Maximize water removal. Optical sensitivity automatically adjusts for thick/thin concentrations.



Duckbill™ Automatic Composite Sampling System

Collect influent/effluent samples from sewers, lift stations, tanks, non-pressurized pipes, sumps, open channels. Explosion-proof sampler uses compressed air (no pumps, no vacuum system) to move samples, even up high lifts (80+ ft), over long runs (90+ ft), in freezing temperatures, from multiple sites simultaneously.



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