

# Sludge Finder

effective sludge level  
detection and control



**PULSAR**  
Process Measurement

# Sludge Finder

Pulsar's Sludge Finder is a versatile, accurate and reliable solution to the problem of accurately measuring sludge levels in primary or secondary clarifiers and DAF systems. Operating ultrasonically through liquid, Sludge Finder uses sophisticated and well proven echo processing algorithms to identify the sludge blanket level.

Sludge Finder's transducer is immersed in the liquid, emitting a high frequency sound pulse down towards the sludge interface. The pulse reflects from the interface of the denser material back to the transducer face. This echo is analysed by the controller unit providing a depth reading and an analogue output proportional to the height of the interface above the vessel bottom.

Sludge Finder uses a self-cleaning underwater acoustic sensor that results in continuous, reliable sludge level measurement. You can reduce sludge pumping, optimise dosing and let your staff concentrate on other things.

Use Sludge Finder in:

- Primary and secondary clarifiers
- Round and rectangular tanks
- Stationary and travelling bridge applications
- Gravity thickeners
- Reactor clarifiers
- DAF thickeners
- SBR tanks
- Industrial process thickeners

- Reduce sludge pumping
- Eliminate potentially unhygienic manual measurements
- Automate Clarifier/Thickener control
- Advance process upset warning
- Multiple tank options
- Optimise chemical dosing

## Multiple tanks

Sludge Finder will operate with up to four transducers from a single control unit, providing economical control and a single connection point for control system interface.

Sludge Finder features a 32-bit microprocessor with a multifunction display showing blanket level, complete tank profile, alarm points, tank depth and multiple tank status.



## The hygienic solution

Remote measurement with Sludge Finder means you can put an end to tedious, time consuming, potentially unhygienic and hazardous manual measurements using gap switches or vacuum probes



## Easy installation & set-up

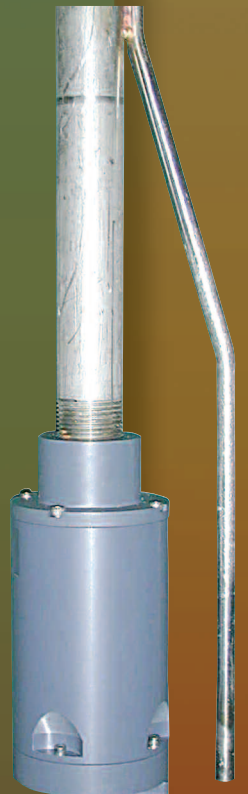
Sludge Finder is simply installed using removable Phoenix connectors for all transducers and outputs, and the standard 6m transducer cable is simply extended with standard twin pair screened cable (Eg Belden 8162). Options include backing plate for handrail installation of the controller and a flexible skimmer avoidance mechanism. To program Sludge Finder, the operator enters the tank depth and zero adjust parameters via a simple menu driven operator interface and the Sludge Finder automatically sets the system gain and tracks to the blanket interface, holding the outputs until the blanket level has been confidently established.

## Self-cleaning transducer

Sludge Finder is designed to be maintenance free. The Sludge Finder transducer is a single beam ultrasonic unit immersed in the liquid. A replaceable rotary PVC wiper blade is in continuous contact with the transducer face, ensuring that the transducer face remains clean. The transducer may be positioned up to 500m from the control unit and has a measurement range of 0.3 to 50m. Accuracy is approximately  $\pm 0.03\text{m}$ . A tight  $6^\circ$  beam angle and sophisticated echo processing algorithms makes sure that Sludge Finder deals with difficult tanks and rotating equipment with ease.

## Versatile outputs

Sludge Finder features 4-20mA isolated outputs for each channel, with multi-drop RS485 connection, also isolated up to 1500V AC. Four control relays are included (10A rated), independently assignable to any channel. Change-over Loss of Echo (LOE) relay alarm is also included.



*Transducer featuring optional skimmer deflector*



# Sludge Finder Technical Information

Measurement type -	Single Beam underwater ultrasonic acoustic sensor, self-cleaning with PVC automatic rotary wiper	
Measurement range -	Minimum range 0.3m, maximum range 50m, range accuracy 0.03m (30mm)	
Maximum separation between transducer and controller - 500m		
Temperature range -	Processor	-40°C to +60°C
	Transducer	Liquid/water to 50°C
Outputs	4-20mA	Internally powered, one output per measurement point Transient protected against transients exceeding 31.4V Isolation: galvanic protection up to 1500V Reverse polarity protection
	Serial ports	RS232 for single unit operation RS485 for multiple units. Transient protection against transients exceeding 31.4V Optional galvanic isolation to 1600Vrms/1 minute, 2000Vrms/1 second
Relays	Four relays, independently assignable to any sensor or loss of echo	
	Approvals	VDE, UL and CSA
	Rating	10A switching capacity at 250V AC, 30V DC
Power requirements	115/230V AC, 100W	
Controller:	IP67 NEMA 4X polycarbonate enclosure 280mm x 280 x 130 deep	
	Display	Backlit LCD dot matrix with adjustable contrast. Can display 4 formats of selectable information.
Transducer:	PVC enclosure, epoxy potting, weight 0.5Kg 121mm high, 64mm diameter 6° beam angle, operating frequency 666KHz. Shielded twin pair connection to control unit (eg Belden B8162). Automatic PVC rotary wiper.	
Warranty:	One year	

Represented by:



Certificate No: 950136

Lit No: SF2 April 06

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