

# FLD Datasheet

## Level & Density Combined Transmitter

"Flolevel acoustic transducers are not affected by color, density, dielectric or by the type of mineral they are working with.

They are self-cleaning and self-checking"



### Principle of Operation

The Level and Density Transmitter (**FLD**) has been specifically designed for extremely difficult Level applications in the Mining Process area like the Outfeed Sump of a Ball Mill, where there could be difficulties in installing standard level transmitters because of a limitation of space, or a very difficult environmental problem. This Outfeed Sump of the Ball Mill also has a requirement for measuring the Suspended Solids Density. The Pulp/Slurry is pumped to the inflow of Cyclones and it is very important to control the solids density inflow to the Cyclone. So, the measuring of the Solids Density will control a Water Addition valve that will add or subtract water to the sump to control the exact Solids Concentration. The main design features are that the FLD system is self-cleaning, so will work in a very difficult environment that could have build-up issues as well as high agitation. The Level system is not affected by density change, froth or scum on the surface of the slurry and will provide a reliable level reading in high turbulent agitation.

The unique operating acoustic system will detect the interface between air and slurry, because of the large change in Acoustic Impedance. All transducers that are below the Pulp/Slurry level, will also measure the Acoustic Impedance changes that occur when the Solids Concentration changes. This acoustic measurement of solids density can detect 1% changes in solids density and is not affected by impurities in the ore, like Nuclear Density technology is. So, Iron, Magnetite, Clay and other impurities in the ore will not affect accuracy of solids density. This means the FLD can measure the correct solids density, no matter what the ore characteristic makes up is and provide stable repeatable control for Water Addition.



FloLevel Technologies™

## Features

- High accuracy Level & Solids Density Measurements
- Measures highly agitated Pulp/Slurry with high resolution
- Measures Solids Density in the Pulp/Slurry while also measuring Level.
- Self-Cleaning and not affected by Froth and Condensation
- Outputs (1) Pulp Height Level (2) Solids Density %
- Measurements not affected by changes in the ore characteristics
- Analog outputs 4-20Ma plus Communication options, ModBus, Foundation FieldBus, ProfiBus PA
- Colour HMI Display shows graphics, trends,
- Simple Installation, Heavy Duty Construction

## Primary Application Uses:

The FLD FloLevel™ Array is designed for the very difficult Level Measurement and Solids Density Measurement in the Outflow Sump of a **Ball Mill, SAG Mill, Diverter Tanks, for Thickeners, Flotation Circuits, etc. all Level applications that have a difficult service environment and also a need to Measure Solids Concentration Density accurately.**

It is designed to be installed in a highly agitated environment, that could contain condensation, froth and high suspended solids contained in the pulp/slurry. It can be installed in small tanks that may make it difficult to use other level measuring technologies.

A major advantage of this level transmitter is its ability to accurately measure the Suspended Solids Concentration, contained within the Pulp/Slurry and average the Solids Density from 0% to 90%.

Using Acoustic Impedance, we can provide a high accuracy of the Solids Density, even when the ore characteristics change with different impurities. These impurities like iron, magnetite, etc. affect the accuracy of more traditional density technologies like Nuclear Density transmitters.

Whilst the transducers are sampling for Level & Density, they also **self-clean** so are not affected by scaling build-up issues.

## Specifications

**Operating Supply Voltage**  
90 – 265Vac 50/60Hz

**Current Consumption:**  
<10 amps with multiple transducers operating

**Output's**  
2 x 4-20Ma isolated analog max. load 500Ohms @ 24Vdc

**Communication Protocols**  
ModBus, ProfiBus PA, Foundation FieldBus,

**Maximum Control Range:**  
6400mm (250")

**Minimum Control Range:**  
240mm (9.5")

**Solids Density Range:**  
0 – 90% (+ - 1% solids)

**Array Housing:**  
Urethane wear plate material, Stainless Steel, Hastelloy

**Flange Mount:**  
12-00" ANSI Flange , 316 Stainless Steel

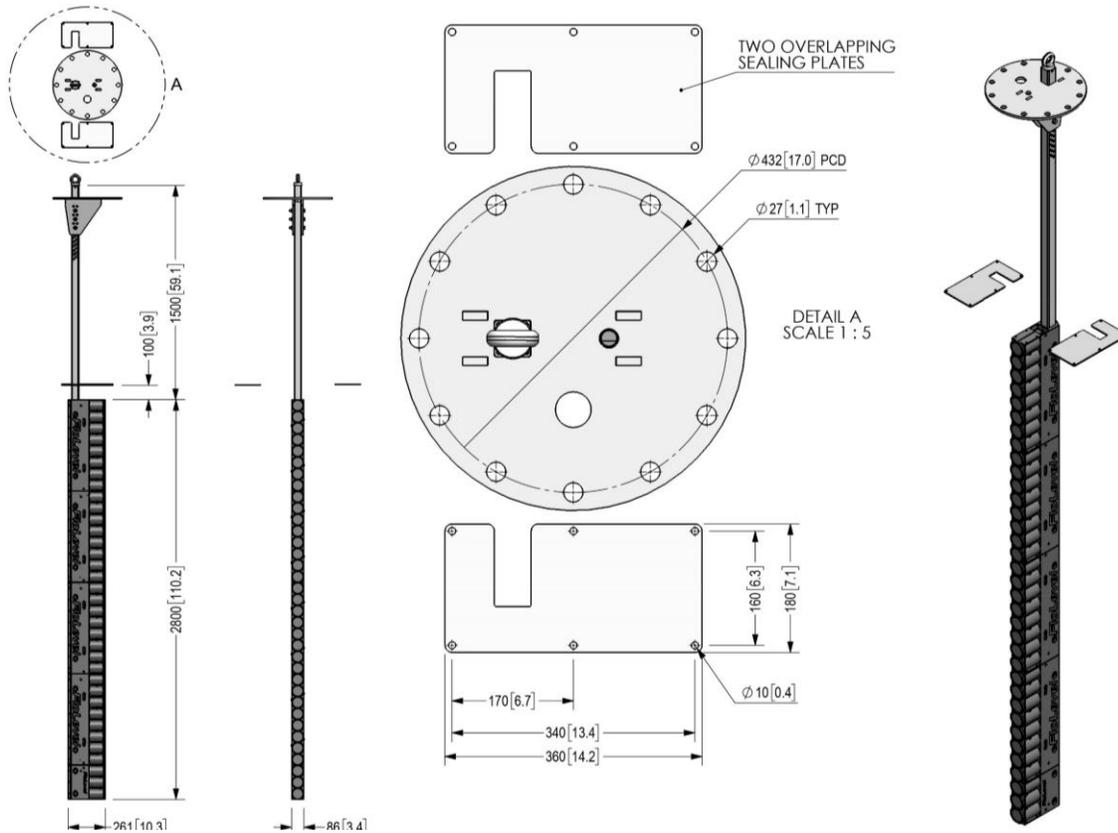
**Process Temperature Range:**  
-20 deg C to 80 deg C

**Controller Enclosure:**  
316 Stainless Steel with 3.5: HDMI Colour Display.

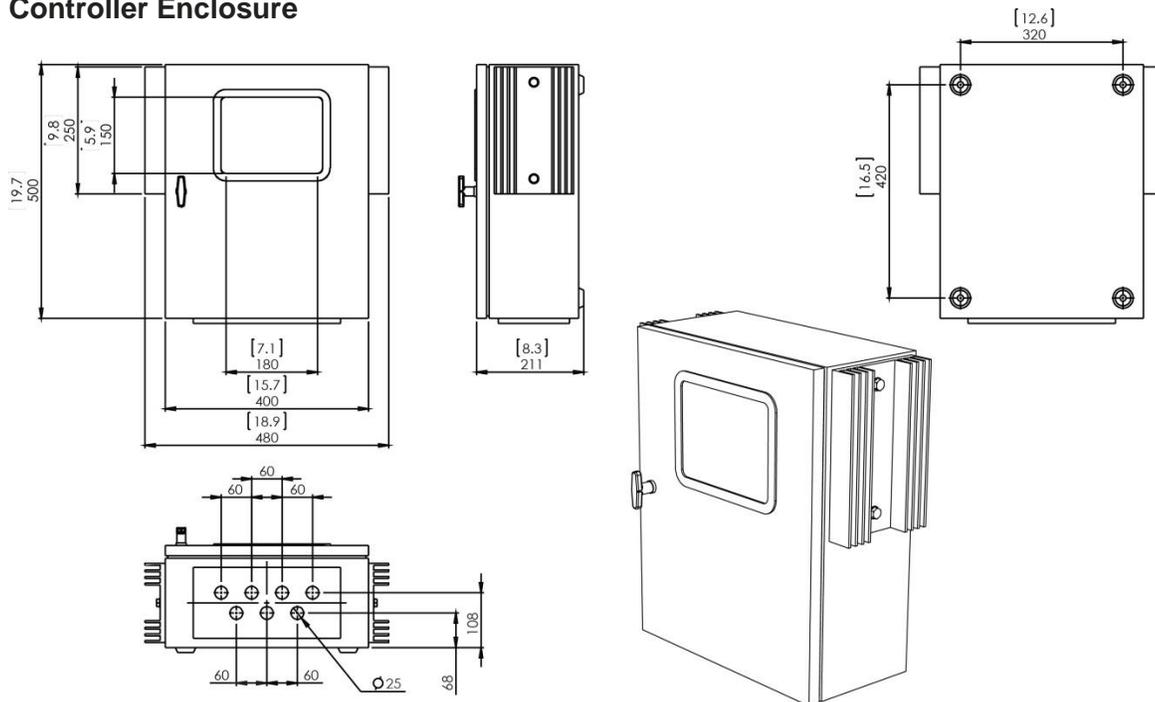
**Weights:** Array 3000mm = 150Kgs  
Controller = 30Kgs



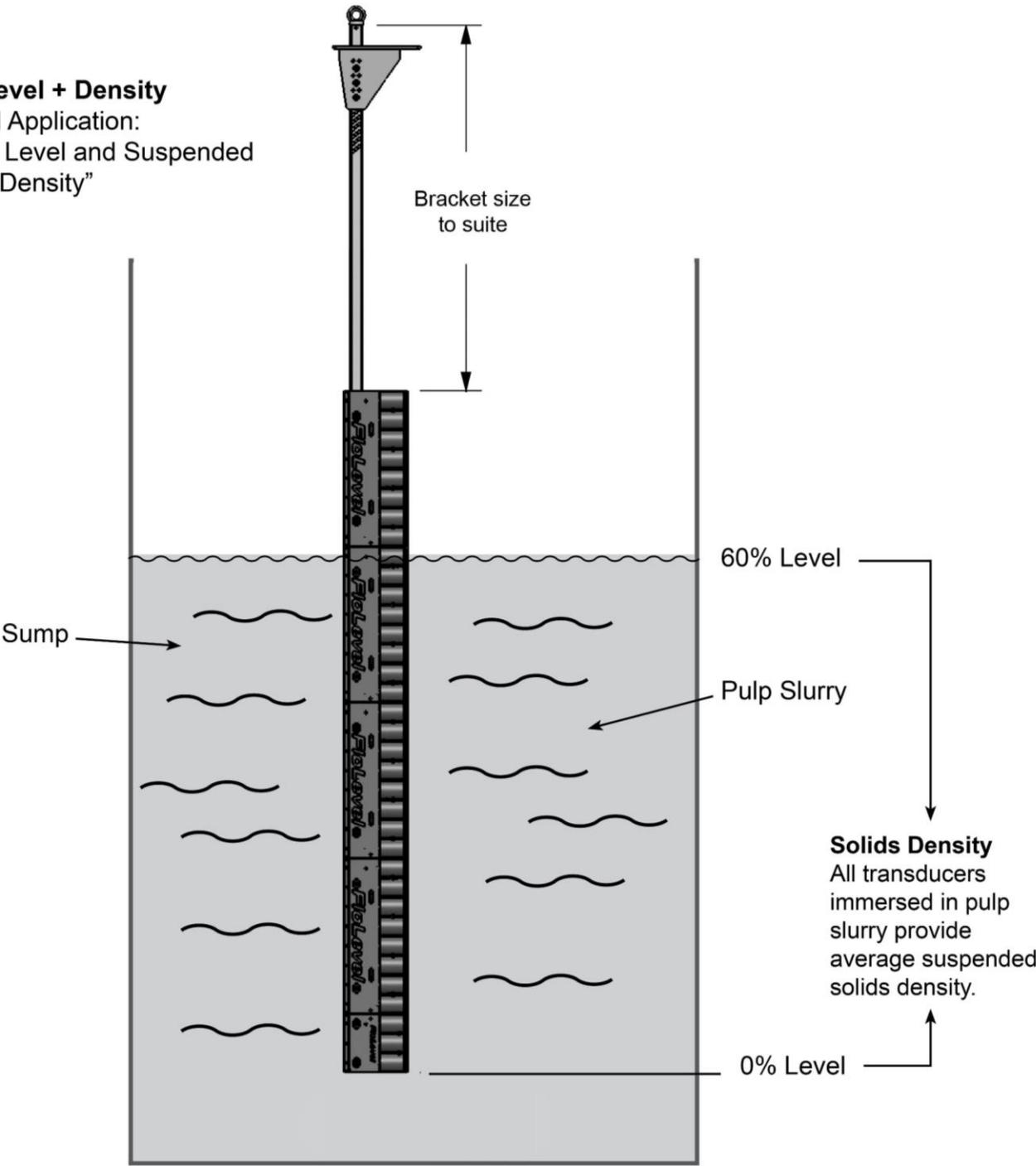
## Typical Drawings



## Controller Enclosure



**FLD Level + Density**  
Typical Application:  
"Sump Level and Suspended  
Solids Density"



## Part Numbers: FLD Level + Density Array

Product	Control Profile Range	Sonar Array Housing	Power Supply	Outputs	Cable Length	Flange	Bracket
FLD	240 mm = 1 1000 mm = 2 2000 mm = 3 (----)* mm = 4  *Nominate length of control range	ABS = 1 Urethane = 2 Special = 3	80-265Vac 50/60Hz @ <5Amp	Modbus = 1 Profibus PA = 2 Foundation Fieldbus = 3 Analog outputs 4-20mA = 4 x2	15 m = 1 Special = 2 (Consult Factory)	12.00" = 1 ANSI Special = 2	Distance from top of array to mounting flange (---) mm = B