



NON-NUCLEAR · ULTRASONIC ACOUSTIC IMPEDANCE DENSITY METER

PS7000 Series

Ultrasonic Acoustic Impedance Density Meter

Non-nuclear slurry density & concentration, measured online.

The non-nuclear standard for online slurry density measurement.



Non-nuclear Chirp acoustic impedance | 0–3000 kg/m³, ±1% FS | DN50–DN3000

Non-nuclear Zero radiation Maintenance-free ≥ 5 yr 4-20mA + Modbus CE

Product Overview

The PS7000 is a new-generation ultrasonic density meter based on the **acoustic-impedance principle**, delivering continuous online measurement of slurry density and concentration. Its in-house linear-FM (Chirp) echo-analysis keeps readings stable even in aerated, highly corrosive and abrasive conditions — widely used for feed and process control in non-ferrous mining, power-plant FGD, steel desulphurization & coking, hydrometallurgy, dredging, pulp & paper and more. Bilingual menu, easy install & maintenance, long-term maintenance-free operation.

Features & Benefits

- Reliable** Proven, field-tested ultrasonic acoustic impedance — stable at high density and under heavy abrasion.
- Non-nuclear · Zero radiation** No radioactive source: no γ -ray hazard or compliance burden, far lower cost of ownership.
- Adaptable** Modular design; flange / weld-in / remote mounting; DN50–DN3000; horizontal or vertical pipes.
- Maintenance-free** Bilingual OLED + IR remote; non-contact probe, zero wear or clogging, life \geq 5 years.

Measuring Principle

When ultrasound meets a solid–liquid interface, echo strength is set by the impedance contrast across it — and acoustic impedance $Z = \rho \times c$ relates directly to slurry density. The PS7000's single probe transmits and receives a wideband Chirp pulse, capturing echoes in real time to penetrate bubble layers, cancel multiple reflections and recover true density.









$Z = \rho \times c$

Z Acoustic impedance

ρ Density

c Speed of sound

Typical Applications

 <p>Mining Slurry</p> <p>Overflow & underflow slurry; optimize dosing</p>	 <p>Power FGD</p> <p>Limestone / gypsum slurry; replace nuclear</p>	 <p>Steel & Coking</p> <p>Sintering / pelletizing / coking slurry</p>	 <p>Hydrometallurgy</p> <p>Leach, extract, EW liquor (Cu·Co·Ni·Li)</p>
 <p>Dredging</p> <p>Dredger mud density; prevent clogging</p>	 <p>Pulp & Paper</p> <p>Pulp consistency; black / white liquor</p>	 <p>Water & Sludge</p> <p>Thickener / digester / dewatering feed</p>	 <p>Tunneling (TBM)</p> <p>Feed & discharge slurry; face stability</p>

Installation

Integral or remote versions: integral is easy to read and recommended for general use; remote suits confined spaces or partially-filled pipes (mount horizontally, probe down). Install on a straight pipe run — no full-pipe requirement; remote signal up to 500 m.



Mounting Options

Mounting	Application
Flange-insert	DN50–DN3000, 5D+2D straight run
Weld-in	ANSI / DIN / JIS compatible
Remote	Signal up to 500 m, tight spaces
Integral	Wall / panel / pipe mount

Contact

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Item	Specification
General	
Model	PS7000 Series (acoustic-impedance line)
Principle	Ultrasonic linear-FM (Chirp) acoustic impedance
Medium	Solid-liquid slurries (ore, ash, coal, limestone, brine)
Range	0–80% mass conc. / 0–3000 kg/m ³
Accuracy / Res.	±1% FS 0.001 g/cm ³ or 0.1%
Output modes	Mass conc. / Volume conc. / Density / Baumé
Calibration	Gravimetric sampling (factory pre-calibrated)
Transmitter / HMI	
Power	DC 24V or AC 220V ±20% (50/60Hz), 4-wire
Consumption	≤ 1W
Display	128 × 64 OLED, EN/CN bilingual (remote optional)
Ingress	Transmitter IP65 / spool IP68
Ambient	–30°C to +60°C, ≤ 98%RH (non-condensing)
Dim. / Weight	400 × 400 × 180 mm, approx. 2.5 kg
Sensor / Spool	
Medium temp.	0°C to +80°C (high-temp type to 120°C)
Probe	316L / 2205 duplex steel + sapphire, Ra ≤ 0.4 μm
Liner	PTFE / rubber / ceramic
Temp. sensor	PT1000 (probe temperature)
Pipe dia.	DN50–DN3000 (larger on request)
Mounting	Flange-insertion / weld-in / remote (ANSI/DIN/JIS)
Output & Certification	
Analog out	4-20 mA × 2 (load ≤ 500Ω)
Digital	RS485 MODBUS-RTU (300–57600, addr. 1–247)
Remote / split	4G wireless (optional); remote up to 500 m
Data logging	2000 live records + 400 logs (power-loss safe)
Ex rating	Exd IIC T6 Gb (optional)
Certification	EU CE

±1% FS

Full-range accuracy

0–3000

kg/m³ range

≤ 1 W

Power draw

≥ 5 yr

Probe life



Xi'an Pisonics Information Technology Co., Ltd.

Non-nuclear ultrasonic slurry density measurement

Non-nuclear · Zero radiation

±1% FS full range

Maintenance-free ≥ 5 yr

4-20mA + Modbus

DN50 – DN3000

CE · Ex optional

Contact Us

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Sizing · Customization · On-site calibration · 1-year warranty

Precision beyond limits · Specifications subject to change without notice