



CLAMP-ON TYPE

LIMESTONE AND GYPSUM
SLURRY DENSITY METER

ENV200-C

01 Clamp-on type ultrasonic density meter



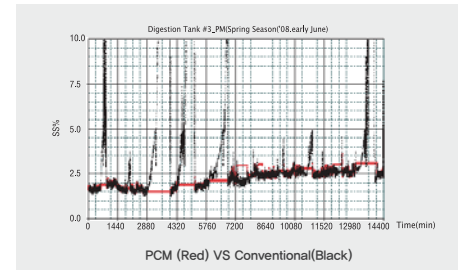
The clamp-on density measurement guarantees fit-and-forget and reliable measurement with almost no influence on measuring medium. Different from other density meters, its measurement isn't affected by pressure, corrosiveness, nor abrasiveness. As the clamp-on sensor can be mounted outside of pipe line even under flow-running condition, the user neither need to stop their process nor to consider the corrosiveness of liquid.

02 Measuring Principle

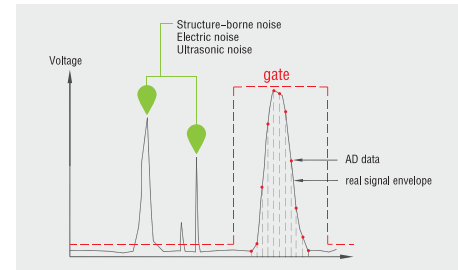
ENV200 basically utilizes ultrasonic signal attenuation principle. ENV200 with PCM(Process Condition Monitoring) algorithm measures not only the size of received signal which is often measured by conventional ultrasonic density meters but also observes changes in sound velocity and temperature in the process. The ENV200 use the EEA(Envelope Energy Average) method that saves reception signal and then calculates its energy, rather than using the reception signal's amplitude change.



PCM (Process Condition Monitoring)



EEAM (Envelope Energy Average Method)



03 Product Features



No maintenance

- No sensor cleaning is required for sludge adhesion on sensor surface.
- No sensor replacement is required for wear and tear by flowing medium.



No additional cost

- No additional pipe line is required for sensor cleaning
- No by-pass line is required for maintenance



No limit on measuring medium

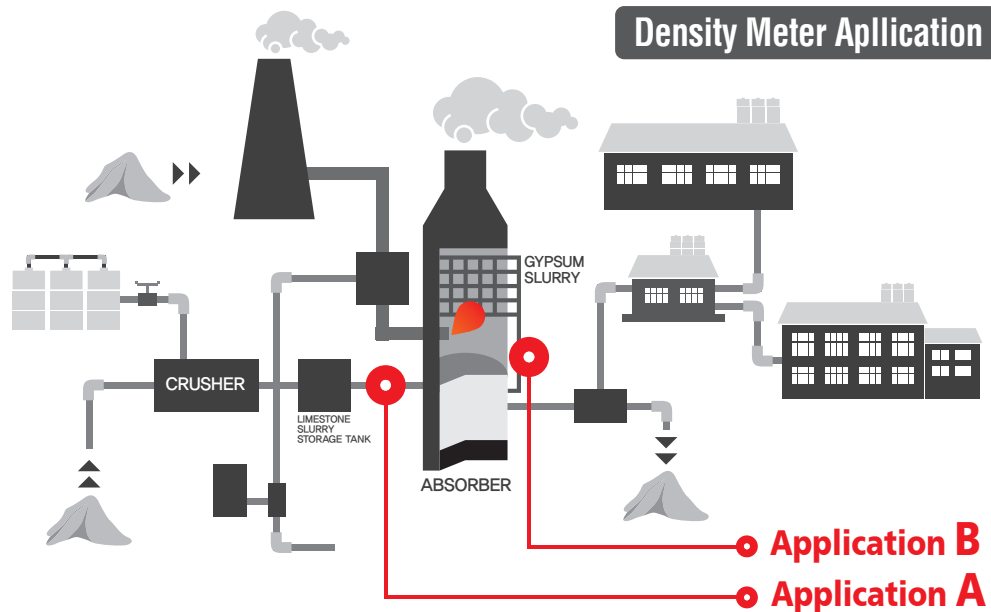
- Can apply to almost all types of sludge regardless of abrasion, adhesion, and corrosion.
- Broad application
 - Desulfurization process at power plant
 - Corrosive liquids of chemical plant
 - Wastewater plant of ready-mixed concrete or mining sector

04 Applications at power plant

The limestone and gypsum slurry density meter can be applied before and after desulfurization process.

The density meter of Application A is installed to monitor the density pumping from a mill slurry tank.

The density meter of Application B is installed to check the efficiency of desulfurization process and to optimize the absorber's water level.



05 Applicable Industries

Power plant
(desulfurization process)

Mining process

Pulp and paper

Water and wastewater

06 Comparison table with other technologies

Specification	WESS	Conventional Ultrasonic	Microwave	Coriolis Flow Meter
Measuring Principle	Ultrasonic Attenuation with PCM & EEAM	Ultrasonic Attenuation	Microwave's phase difference	Coriolis
Measuring Range	0~1,000,000 mg/l(ppm), 1~1.5g/cm ³	0~80,000 mg/l(ppm)	0~500,000 mg/l(ppm)	0~3g/cm ³
Measuring Temp.	-20~70°C	-40~70°C	0~50°C(STD), -20~50°C(Option)	-50~200°C
Sensor Installation	Pipe's outside	Inside	Inside	Inside
Air bubble slurry	O(with PCM)	X	X	Δ
Electrolytes slurry	O	O	X	O
Abrasive Slurry	O	X	X	X
Corrosive Slurry	O		X	X
Sensor replacement	Rare	3 months	6 months	3 ~ 6 months

O: Excellent

Δ: Okay

X: Bad

07 | Technical Specifications

Controller	C2-S
Measuring Principle	Ultrasonic Attenuation and EEAM(Envelope Energy Average Method)
Measuring Ranges	0~25% TSS, 0~20% W%, 1.000~1.500g/cm ³ (S.G.)
Measuring Mode	Process Mode, Real-time Mode
Display	Density, Time, Pipe condition, Flow condition, mA , etc.
Resolution	0.01%, 0.001g/cm ³ (S.G.)
Accuracy	± 5% of measured range or 1% of F.S.
Repeatability	± 1% of reading
Operational Temp.	-20 ~ 70°C
Data Saving	Maximum 400 days Data logging & Trend, Option : SD Card
Screen	Numeric, Process, Date Trend, Diagnosis
Outputs	Current Output : 4~20mA, nom. Load 250Ω (load range : 100 ~ 750Ω) Relay Output : 3 SPDT(5A, 250VAC) – “ER” “R1” “R2” Digital Output : RS232C(Standard) or RS485
Power Supply	Standard : 100 ~ 240V AC, 50~60Hz, ≤6W Option : 24V DC
Weight	3 kg
IP Rating	IP67
Certificate	CE

Sensor	S2-C
Material	Body : MC Nylon, Ultrasonic Head : Epoxy
Pipe Size	50A ~ 300A DIN, ANSI, JIS Available
Pipe Material	Stainless Steel, Plastic, Carbon Steel, etc.
Frequency	1MHz ~ 1.5MHz, automatic frequency selection
Operational Temp.	-20 ~ 70°C
Cable Length	10m(33ft)
IP Rating	IP65

