Ultrasonic Sludge Blanket Monitoring System

The ENV100 Ultrasonic Sludge Blanket Level Meter manufactured by WESS, utilizes enhanced ultrasonic technology to measure the sludge interface level in various types of clarifiers, settling tanks and thickeners with superior accuracy and reliability. The instrument continuously provides the user with important information which includes numeric & graphic screens representing the distance to the blanket, an echo profile image to ensure correct configuration during commissioning and saved data analysis.

Additional features such as ASF (Abnormal Signal Filter), allows elimination of irregular field noise which can result from moving structures intermittently obscuring the signal. The ENV100 technology additionally incorporates a compressed air cleaning system to maintain the sensor in optimum condition and guarantee maintenance-free measurement. Specially designed mounting hardware is also available.

Product Features

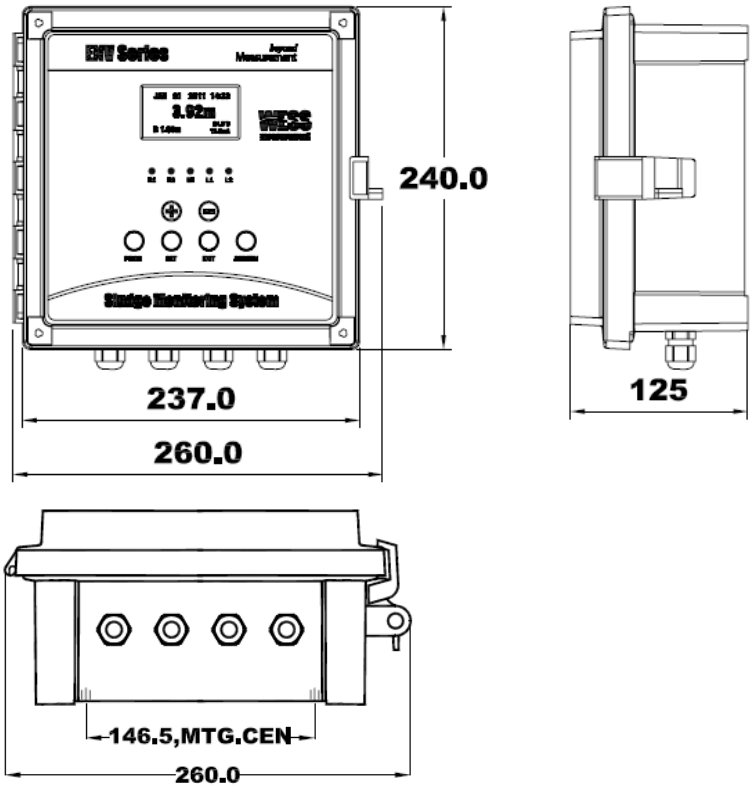
- Continuous and real-time measurement
- 4 sensors measurement with one controller enables economic operation
- Maximum 400 days data logging and monitoring
- Wireless option avoids cabling cost
- Automatic sensor cleaning guarantee maintenance-free measurement
- Built-in unique algorithm eliminates stationary and moving structures
- Free WESSWARE software enables field data analysis and menu setup

WESS measurement

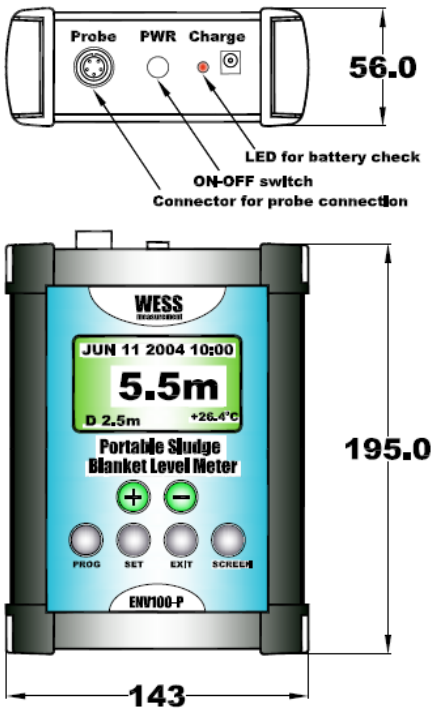
Product Dimensions

Controllers

ENV100-S/M

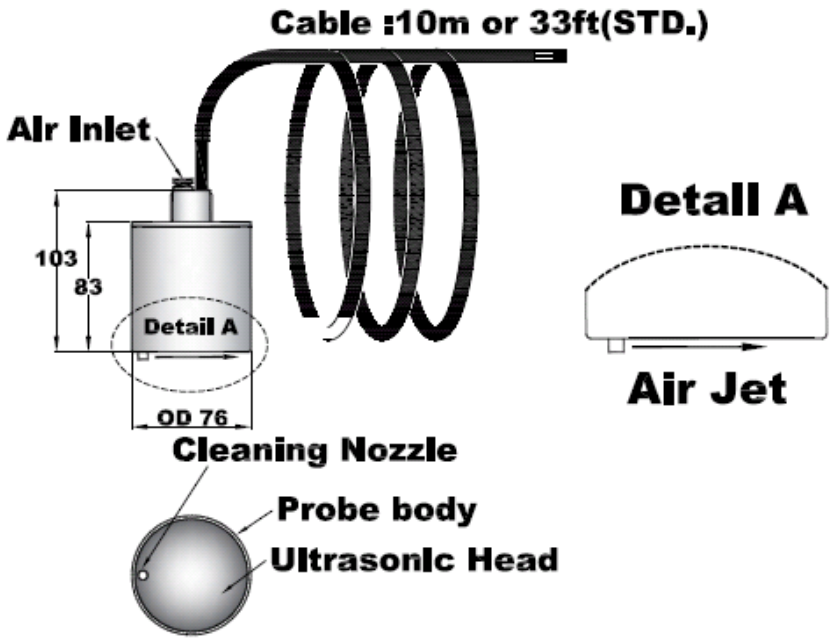


ENV100-P(Portable)

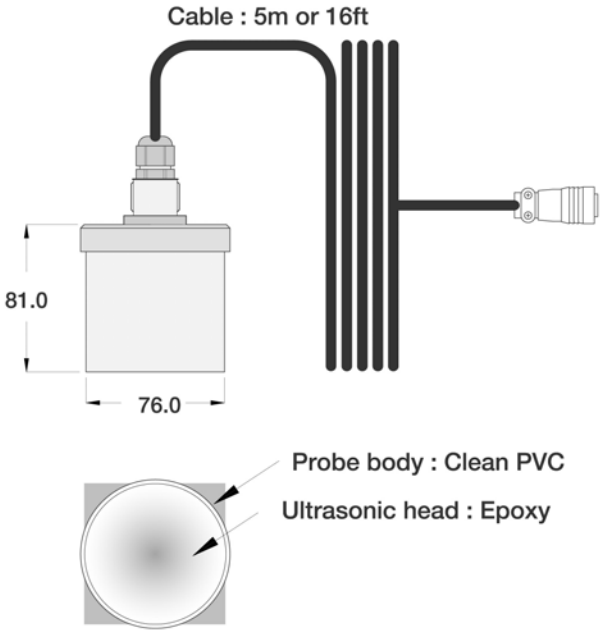


Sensors

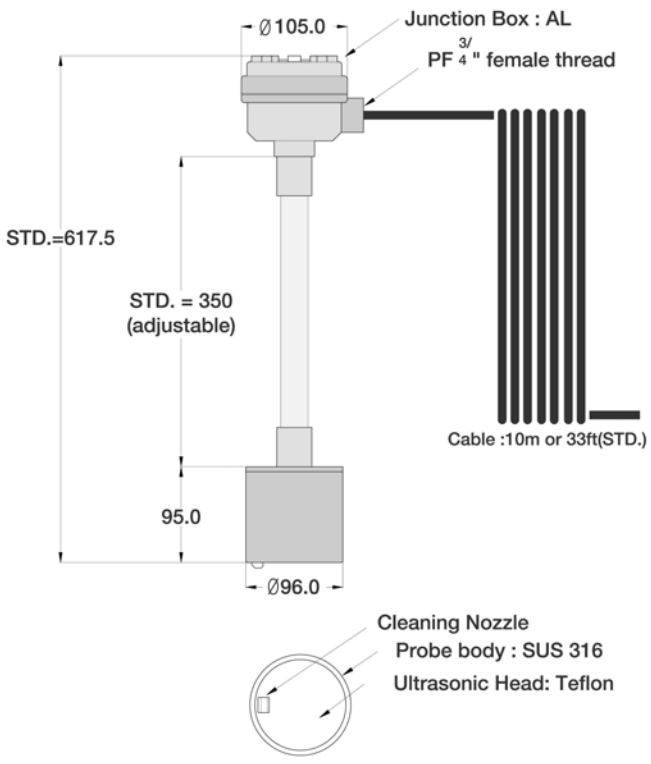
S1-G/T



S1-P(Portable Type)



S1-H(High Temperature Type)



Product Specifications

Controllers

ENV100-S

Measuring Principle	Ultrasonic Echo Flight Time
Measuring Range	0.35 ~ 10m(1~33ft)
Resolution	1cm(metric units), 0.1ft(UK units)
Accuracy	+/- 0.5% of measured range or 1 inch, whichever is greater
Measuring Pulse	5~25times/sec
Measuring Density	User programmable density(Light/Heavy)
Display	Graphic LCD (Interface level, Distance, Echo Amp, Time, Current output, Trend, Temperature)
IP Rating	IP67
Data Saving	Maximum 400 days Data logging & Trend
Screen	Numeric, Echo Profile, Data Trend
Operational Temperature	-20 ~ 70°C(-4~158°F)
Sensor Control	1 Point
Sensor Cleaning	Automatic air-jet

Outputs

Current : 4~20mA, nom. Load 250Ω (load range : 100 ~ 750Ω)

Relay : 3 SPDT(5A, 250VAC) – “ER” “R1” “R2”

Digital : RS232C(Standard), RS485(Option)

Power Supply

Standard : 100 ~ 240V AC, 50~60Hz, ≤6W

Option : 20~30V DC

Enclosure Material	Body/Cover : FRP Window : Polycarbonate
Dimension	237(W) x 240(H) x 125(D)mm
Mounting	Hole center 153(W) x 273(H) mm(Ø 8.2 x 4ea)
Weight	3 kg
Certificate	CE

WESS measurement

ENV100-M

Measuring Principle	Ultrasonic Echo Flight Time
Measuring Range	0.35 ~ 10m(1~33ft)
Resolution	1cm(metric units), 0.1ft(UK units)
Measuring Pulse	5~25times/sec
Measuring Density	User programmable density(Light/Heavy)
Accuracy	+/- 0.5% of measured range or 1 inch, whichever is greater
Operational Temperature	-20 ~ 70°C(-4~158°F)
Display	Graphic LCD (Interface level, Distance, Echo amp, Time, Current output, Trend, Temperature)
IP Rating	IP67
Data Saving	Maximum 400 days Data logging & Trend
Screens	Numeric, Echo Profile, Data Trend
Sensor Control	Maximum 4 Points

Outputs

Current : 4EA X4~20mA, nom. Load 250Ω (load range : 100 ~ 750Ω)

Relay : 3 SPDT(5A, 250VAC) – “ER” “R1” “R2”

Digital : RS232C(Standard), RS485

Power Supply

Standard : 100 ~ 240V AC, 50~60Hz, ≤6W

Option : 20~30V DC

Enclosure Material	Body/Cover : FRP Window : Polycarbonate
Dimension	237(W) x 240(H) x 125(D)mm
Mounting	Hole center 273(W) x 153(H) mm(Ø 8.2 x 4ea)
Weight	3 kg
Certificate	CE

WESS measurement

ENV100-P(Portable)

Measuring Principle	Ultrasonic Echo Flight Time
Measuring Ranges	0.35 ~ 10m(1~33ft)
Resolution	1cm(metric units), 0.1ft(UK units)
Measuring Pulse	5~25times/sec
Accuracy	+/- 0.5% of measured range or 1 inch, whichever is greater
Operational Temperature	-20 ~ 70°C(-4~158°F)
Display	Graphic LCD (Interface level, Distance, Echo Amp, Time, Current Output, Trend, Temperature)
IP Rating	IP65
Data Saving	Programmable Memory
Screens	Numeric, Echo Profile
Sensor Control	1 Point

Outputs

Digital : RS232C(Standard), RS485(option)

Power Supply

3EA X AA Lithium ion rechargeable battery

Enclosure Material	Aluminum
Dimension	143(W) x 195(H) x 56(D)mm
Weight	1.5 kg
IP Rating	IP65
Data Saving	Programmable Memory
Screens	Numeric, Echo Profile
Display	Sludge Level, Distance, Temperature, Present Time
Certificate	CE

WESS measurement

Sensors

S1-G/T

Sensor Structure	Ultrasonic sensor with built-in cleaning nozzle
Material	S1-G Body : S.S. 316, Head : Grey PVC + Epoxy S1-T Body & Head : Teflon
Mounting Thread	3/4" PF female thread
Cable Length	10m(33ft)Standard, Max. 300m extensible on request
Operational Temp.	-10 ~ 50°C(14 ~ 122°F)
Beam Angle	5 degree
Frequency	160/380 kHz
Weight	3kg
IP Rating	IP68
Cleaning	Air-jet (built-in cleaning nozzle)

S1-P(Portable)

Material	Probe body : Clean PVC, Ultrasonic Head : Epoxy
Cable Length	5m(17ft)
Operational Temperature	-10 ~ 50°C(14 ~ 122°F)
Beam Angle	5 degree
Frequency	160/380 kHz
Weight	3kg
IP Rating	IP68

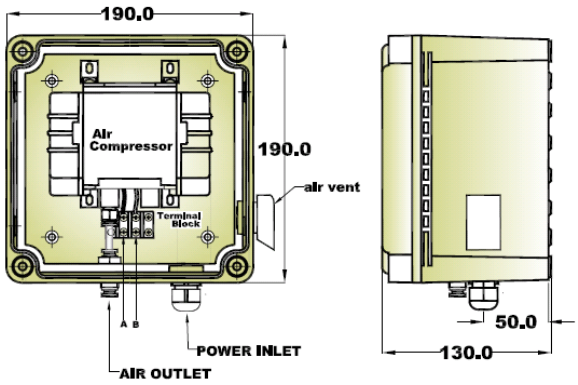
S1-H(High Temperature)

Sensor Structure	Ultrasonic sensor with built-in cleaning nozzle
Material	Probe body : S.S. 316, Ultrasonic Head : Teflon Junction Box: Aluminum die-casting
Mounting Thread	3/4" PF female Thread
Cable Length	10m(33ft)Standard, Max. 300m extensible on request
Operational Temperature	-10 ~ 100°C(14 ~ 212°F)
Beam Angle	5 degree
Frequency	160/380 kHz
Weight	4kg(include Junction)
IP Rating	IP68
Cleaning Method	Air-jet (built-in cleaning nozzle)
Pipe Length Between	350mm(1ft)Standard, extensible on request

Optional Devices

Sensor Cleaning Device

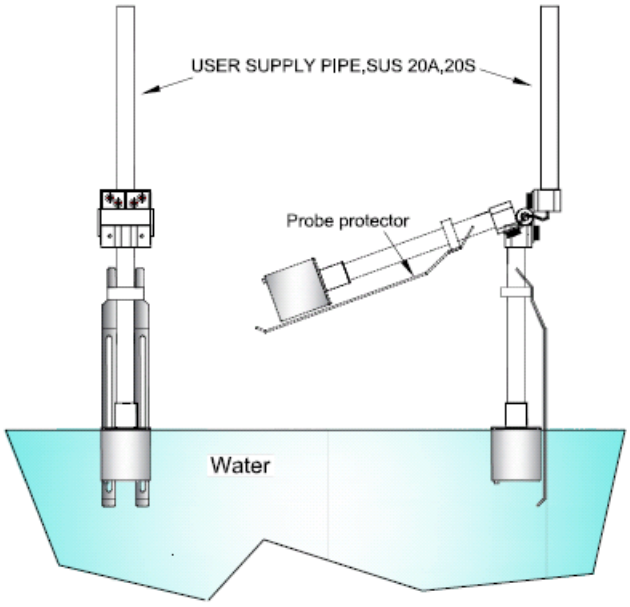
Periodical sensor cleaning is recommended as a precaution since floating debris and biological material is in contact with the ultrasonic sensor



Free Flow Rate	40L/min
Max Pressure/Vacuum	0.3bar/250mmHg
Oper. Temp.	-20 ~ 60°C (28~ 140°F)
Power supply	
Standard : 220V AC ±10% , 50~60Hz, ≤40W	
Option: 110V AC ±10% , 50~60Hz	
Enclosure Material	ABS
Dimension	190(W) x 190(H) x 130(D)mm
Mounting	Center hole 155(W) x 100(H)
	(M5 x 4ea)
Weight	2 kg
IP Rating	IP65

Swing Bracket

The swing bracket is to secure skimmer passage at clarifiers. Once it has passed, the bracket is free to fall, re-immersing the sensor into the clarifier water

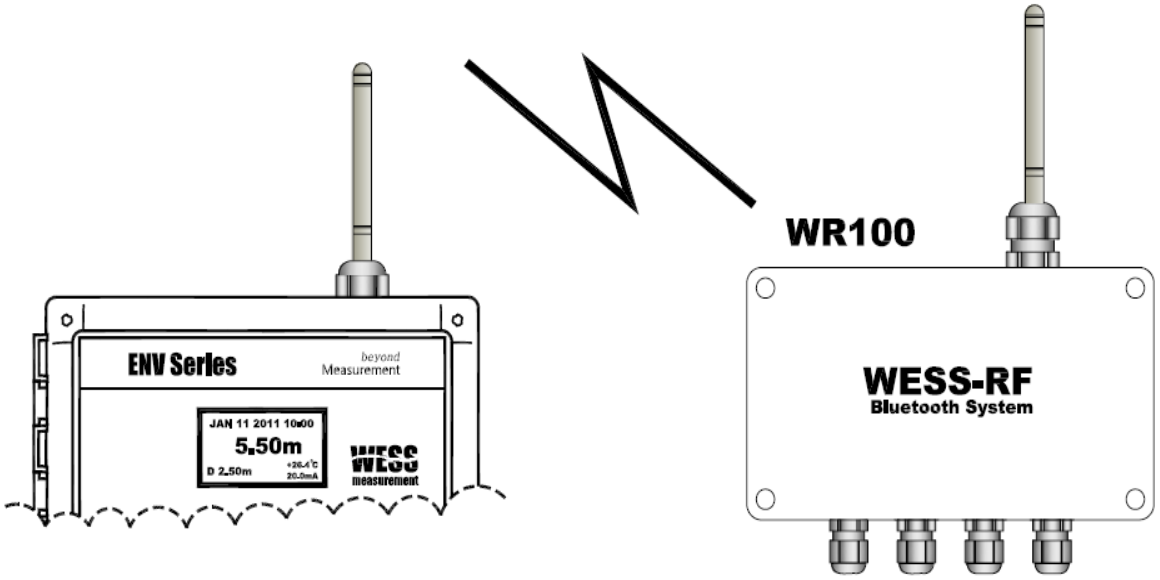


Optional Devices

Wireless Bluetooth Module(WESS-RF)

WESS-RF is a Bluetooth based wireless data communication system consisting of WR-100 and antennas. This system can be applied along with a controlling part of our measuring instruments such as ultrasonic sludge blanket level meter, density meter, level meter etc. The communication distance between WR100 and transmitting antenna is from 200m to 1km.

This RF system is normally used to reduce cabling cost and to install where measurement places move continuously. The WESS-RF offers not only mA output but also RS232 output. Since pairing work between a transceiver and a receiver is done by us, user only needs to supply power after installation.



Product Features

- Use internationally approved RF band, 2.402 ~ 2.408GHz
- No need any pairing work
- mA output and RS232 output
- Communication distance up to 1km
- External enclosure is not needed for transceiver

Ordering Code

ENV Series

ENV-100 Ultrasonic Sludge Blanket Level Meter

ENV-100	CODE	DESCRIPTION
Controller	C1S	One sensor measurement, AC100~240V
	C1SD	ENV100-S, DC20~30V
	C1M	Up to four sensors measurement, AC100~240V
	C1MD	ENV100-M, DC20~30V
Sensor	S1G	S1-G, General type (Epoxy facing, Stainless steel body)
	S1T	S1-T, For chemical plant (Teflon facing, Stainless steel body)
	S1H	S1-H, High Temperature (Stainless steel body, Teflon facing)
Option	C_XXm	Additional cable extension in meters
	RSC	RS-232 Download cable
	R44	RS-485 (RS232 is provided as standard)
	PRO	PROFIBUS-DP
	WMS	Wireless module for single channel
	WMD	Wireless module for multi channel
	SBK	Swing Bracket(Skimmer free device)
	CD1	Sensor Cleaning Device, AC110V
	CD2	Sensor Cleaning Device, AC220V
	SV1	Solenoid Valve for Cleaning Device, DC24V
	SL2	Solenoid Valve for Cleaning Device, 110V
	SL3	Solenoid Valve for Cleaning Device, 220V
	CMK	Controller Mounting Kit (Hand-rail)
	SMK	Sensor Mounting Kit
	CDMK	Cleaning Device Mounting Kit(Hand-rail)
NOTES*	Ex) C1S-S1G-CD2-SMK - One channel type controller and general sensor with cleaning device(220V) and sensor mounting kit	

ENV-100 Portable Ultrasonic Sludge Blanket Level Meter

ENV100	CODE	DESCRIPTION
Portable Unit	C1PD	ENV-100 Portable Ultrasonic Sludge Blanket Level Meter for distributor
	C1PC	ENV-100 Portable Ultrasonic Sludge Blanket Level Meter for customer

WESS measurement