

## Ultrasonic Sludge Blanket Level Meter

# ENV120

### DATA SHEET

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# Ultrasonic Sludge Blanket Level Meter

# ENV120



The ENV120 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.

## Features

- Continuous and real-time measurement
- High temp. & chemical resistive sensors
- Implementation superior signal control and tracking algorithms
- Light and heavy layer level measurement with multiple frequencies
- Apply abnormal signal filtering algorithm
- Maximum 400 days data logging and monitoring
- Automatic sensor cleaning guarantees maintenance free measurement
- Free WESSWARE software enables field data analysis and download logged data

Additional feature, such as ASF (Abnormal Signal Filter), allows elimination of irregular field noise which is due to moving structures intermittently obscuring the signal. The ENV120 technology additionally incorporates an automatic compressed air cleaning system to maintain the sensor in optimum condition and guarantee maintenance-free measurement. Specially designed mounting kits and swing brackets for free scraper and skimmer passage are available.

## Application

- WWTP primary and secondary clarifier
- WTP thickener and settling basin
- Power plant limestone sludge sedimentation
- Refining processes sedimentation basin
- Mining industry
- Ethanol oil manufacturing processes

# Controller

The controller analyzes the transmitted/received ultrasonic signals to calculate the distance and controls pumps and actuators. The screen of controller consists of numeric, echo profile, data trend and parameter screen.

## C1S



### Specifications

Unit dimension [mm]

252(W) x 238(H), 124(D)

Weight

2.2 kg (± 0.2)

IP Rating

IP67

Power Supply

100 ~ 240V AC, 50~60Hz, ≤15W (STD.),  
24V DC, ≤17W (Option)

Certificate

CE

Mount dimension [mm]

205(W) x 246(H) – Center Hole (Φ7.9 x 4ea)

Enclosure Material

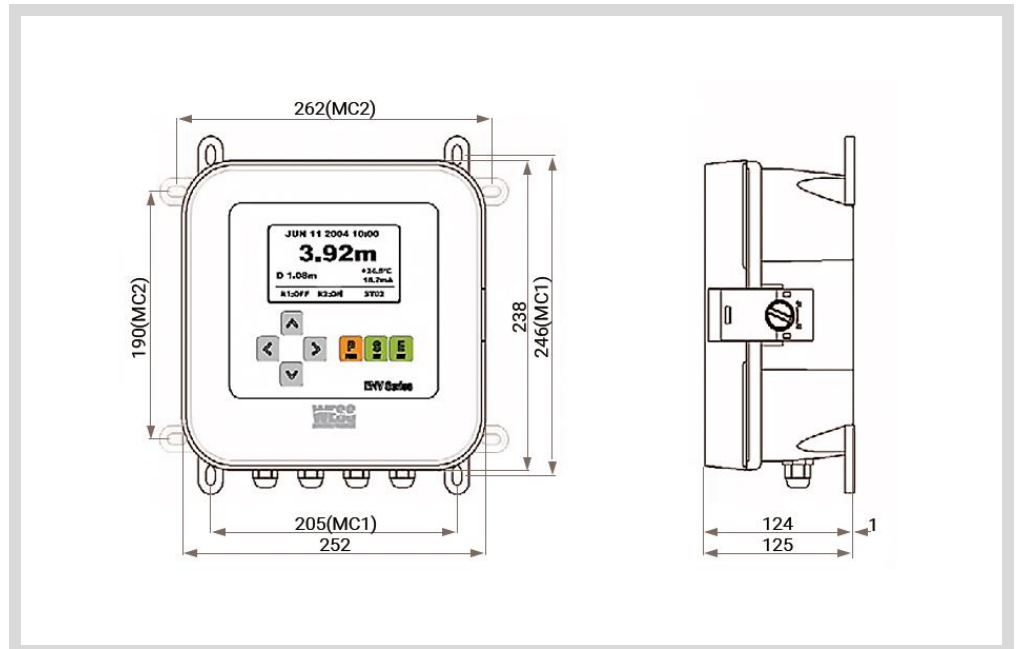
ABS

Operating Temp.

-20 ~ +70°C

Applied Sensor

S1T / S1H / S1G



## Function

Sludge level measurement

**Ultrasonic signal control (Tx, Rx)**

→Signal analysis and calculate distance

→Sludge level

Display

**Graphic LCD (240x128)**

Main Screen

**Numeric, Echo profile, Data trend, Parameter**

Current Output

**4~20 mA, nom. Load 250Ω (100~750 Ω)**

Digital communication

**RS232 (Default) or RS485(Option)**

Data Saving

**Max. 400 days (10K points)**

Customer Input

**Membrane 7 keys - Up, down, left, right, P(Program), S(Set), E (Exit)**

Language

**English (Korean, Chinese, or Japanese)**

Main Screen Information

**Interface level, Distance, Time, Current output, Temperature**

Relay

**3 SPDT (5A, 250VAC)**

Protocol

**Standard / Modbus(Option)**

Sensor Cleaning

**Built-in automatic air-jet**

## Measurement

Measuring Range [m]

**0~10 (Include dead zone)**

Accuracy

**±0.5% of full scale (0.05m, @10.00m)**

Number of Channel

**1**

Resolution [m]

**0.01**

Measuring Density

**User programmable density (Heavy or Light)**

# Sensors

Three sensors are available to accommodate respective field requirements.

## S1T

Ultrasonic Sludge Level Meter, Typical Sensor



### Specifications

Sensor Structure	Ultrasonic sensor with built-in air cleaning nozzle	Cable Length	10m(STD.)
Frequency	130/160/270/380 kHz	Mounting Thread	3/4" PF Female Thread
Beam Angle (half)	5 degree	IP Rating	IP68
Operating Temp.	0 ~ +50°C	Weight	1.5 kg (Include 10m cable)
Material	Body & Head: PP	Cleaning	Air jet (Built-in cleaning nozzle)
Dimension (mm)	Φ88 x 153(H)	Cleaning connection tube	One-Touch fitting for Φ6 tube

## S1H

Ultrasonic Sludge Level Meter, High-Temperature Sensor



### Specifications

Sensor Structure	Ultrasonic sensor with built-in air cleaning nozzle	Cable Length	10m(STD.)
Frequency	130/160/270/380 kHz	Mounting Thread	3/4" PF Female Thread
Beam Angle	5 degree	IP Rating	IP68
Operating Temp.	0 ~ +70°C	Weight	1.5 kg (Included 10m cable)
Material	Body & Head: PP	Cleaning	Air jet (Built-in cleaning nozzle)
Dimension (mm)	Φ88 x 153(H)	Cleaning connection tube	One-Touch fitting for Φ6 tube

# Sensors

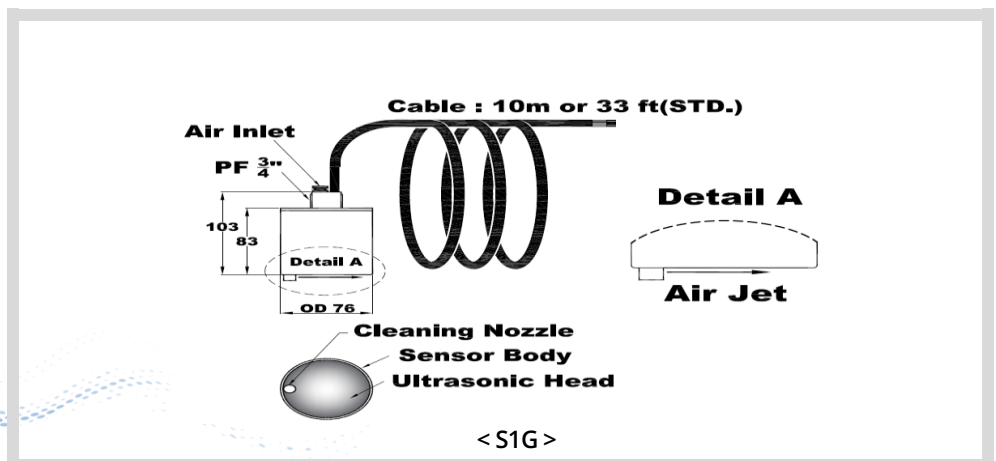
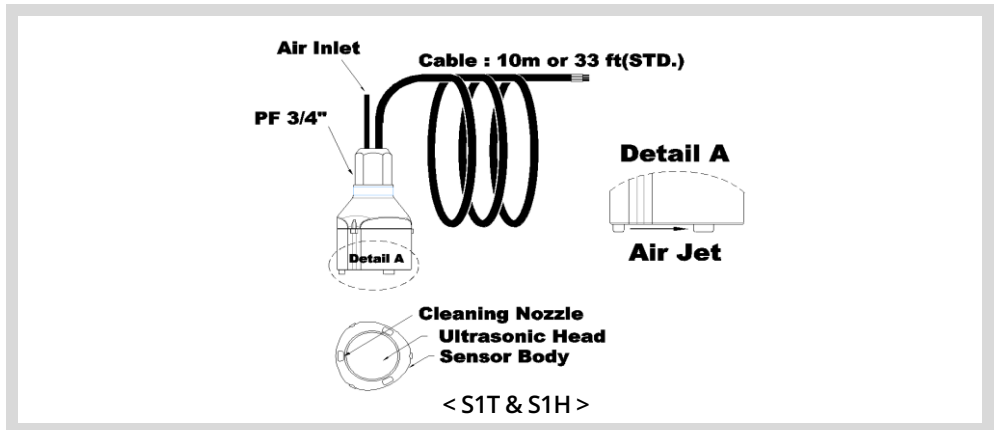
## S1G

Ultrasonic Sludge Level Meter, Include AMP for Gain



### Specifications

Sensor Structure	Cable Length
Ultrasonic sensor with built-in air cleaning nozzle	10m(STD.)
Frequency	Mounting Thread
130/160/270/380 kHz	3/4" PF Female Thread
Beam Angle (half)	IP Rating
5 degree	IP68
Operating Temp.	Weight
0 ~ +60°C	2.2 kg (Include 10m cable)
Material	Cleaning
Body: SUS304 , Head: Epoxy	Air jet (Built-in cleaning nozzle)
Dimension (mm)	Cleaning connection tube
Φ76 x 83(H)	One-Touch fitting for Φ6 tube



# Optional Items

ENV120 is equipped with a cleaning nozzle inside the ultrasonic sensor to automatically clean the sensor surface. Periodical sensor cleaning is recommended as a precaution since floating debris and biological material is in contact with the ultrasonic sensor. When using the air-line on site, a sensor cleaning device equipped with a solenoid valve is supplied as an option.

## CD1(110V AC)/CD2(220V AC)/CD3(24V DC)

Sensor Cleaning Device



### Specifications

Unit dimension [mm]  
190(W) x 190(H), 130(D)

Weight  
2.0 kg

Free Flow Rate  
25L/min

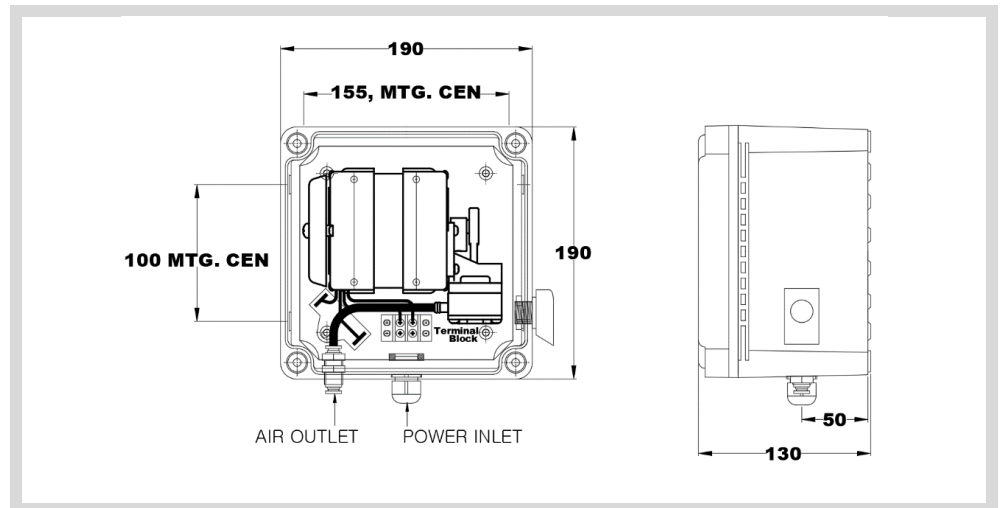
Built-in automatic air-jet  
220V AC±10%, 50~60Hz or  
110V AC±10%, 50~60Hz or 24V DC

Mount dimensions [mm]  
155(W) x 100(H) – Center Hole (M5 x 4ea)

Enclosure Material  
ABS

Operating Temp.  
-10 ~ +60°C

Max Pressure/Vacuum  
4.5bar



# Optional Items

The swing bracket is to secure skimmer or scraper passage at clarifiers. Once the moving structure has passed, the bracket is free to fall and then re-immerses the sensor into water.

## SB

Swing Bracket / Sensor Protection Device

### Specifications



Damper dimension [mm]

86(W) x 80(H)

Weight

1.96 kg, pipe length: 30cm(STD.)

Damper torque

5Nm or 10Nm

Damper method

hydraulic

protection dimensions [mm]

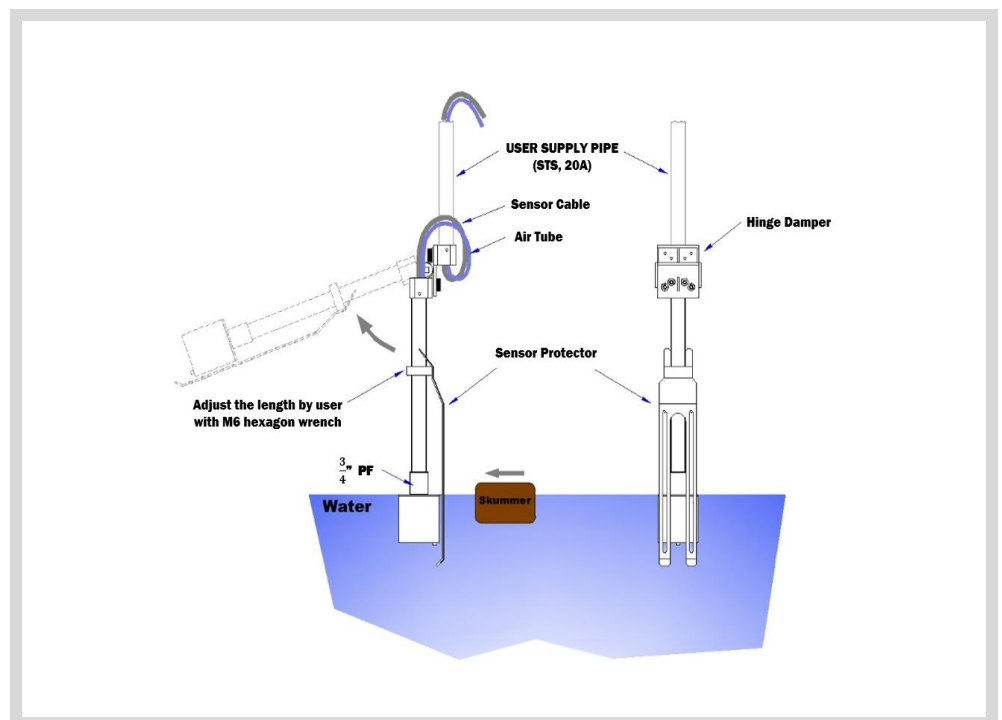
70(W) x 375(H)

Enclosure Material

STS304

Attachment structure

3/4" PF Female Thread





## Optional Items

Sensor mounting kit is designed to use hand-rail or ground installation. This SMK helps easier sensor maintenance work.

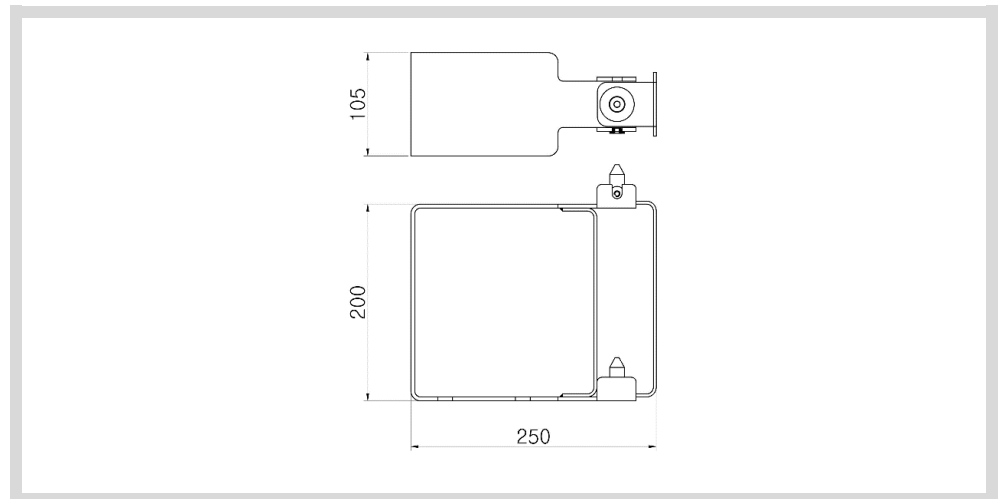
### SMK

Sensor Mounting Kit

#### Specifications

Unit dimension [mm]  
250(W) x 200(H) x 105(D)

Enclosure Material  
STS304

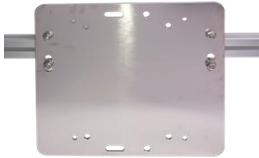


# Optional Items

Controller and Cleaning device mounting kit is used for installation of controller or cleaning device. Hand-rail type of controller and cleaning device mounting kit are provided to make installation and maintenance easier.

## CMK

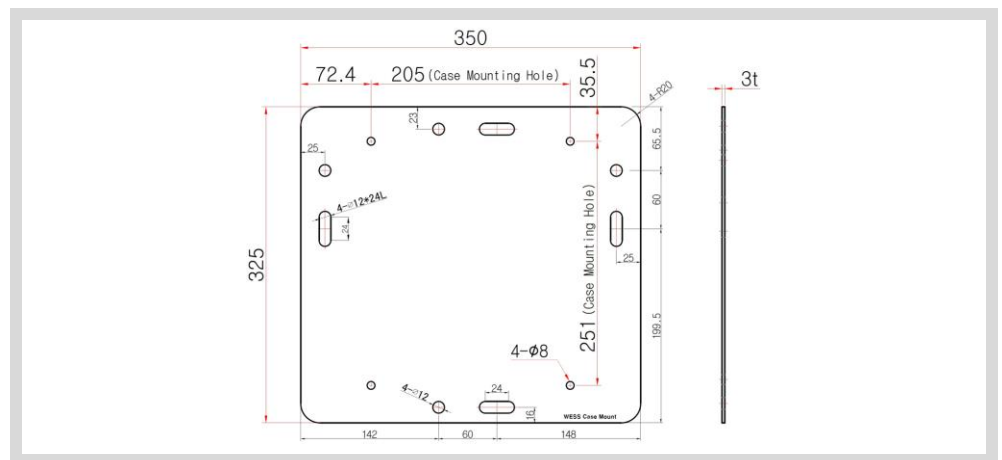
Controller Mounting Kit



### Specifications

Unit dimension [mm]  
350(W) x 325(H) x 3T

Material  
STS304



## CDMK

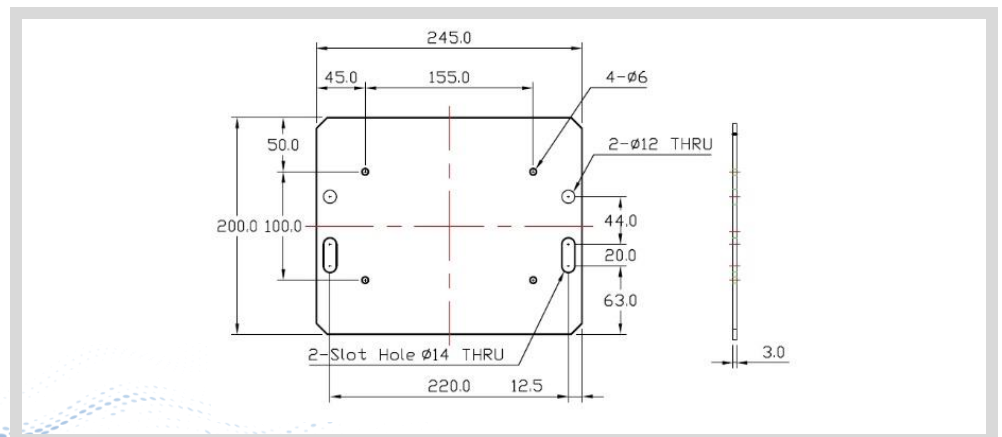
Sensor Cleaning Device Mounting Kit



### Specifications

Unit dimension [mm]  
245(W) x 200(H) x 3T

Enclosure Material  
STS304



# Ordering Code

## Controller

Code	Description
C1S	ENV120 single controller, AC100~240V

## Sensor

Code	Description
S1T	Standard sensor (Body and Face: PP)
S1H	High temperature sensor (Body and Face: PP)
S1G	STS sensor (Body: STS304, Face: Epoxy)

## Optional Items

Category	Code	Description
Cleaning Device	CD1	Sensor cleaning device - AC110V
	CD2	Sensor cleaning device - AC220V
	CD3	Sensor cleaning device - DC24V
Swing Bracket	SB1	SUS pipe length : 300mm
	SB2	SUS pipe length : 500mm
Mounting Kit	CMK	Controller mounting kit (Hand-rail)
	CDMK	Cleaning device mounting kit (Hand-rail)
	SMK	Sensor mounting kit (Hand-rail)
Others	DC2	Controller output : DC24V
	RS4	RS485 (STD. RS232)
	MOD	Modbus communication
	C_XX	Total sensor cable length (Unit: m), (STD. 10m)