



Water Quality Analyzer

On-Line Instruments

MLSS-96M/SS-96M



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Water Quality Monitoring Instruments

Mixed Liquor Suspended Solids Analyzer Suspended Solids Analyzer

MLSS-96M / SS-96M

Microprocessor based MLSS-96M or SS-96M panel mount controllers, with appropriate sensor assembly, are used to continuously measure the MLSS(Mixed Liquor Suspended Solids) or Suspended Solids (SS) in waste water treatment processes. Other applications include water reservoirs, surveillance of sewage influent and effluents, sludge treatment, or application where reliable MLSS or SS measurements are required.

The Model MLSS(SS)-96M includes all circuitry necessary for measurement and transmission of an programmable isolated 4-20mA signal and provides reliable MLSS or SS measurement in any harsh field environmental process conditions. Model HBU-200 is an immersible sensor whose detector, cleaner and holder are incorporated in one body. HBU-200 for measuring MLSS is incorporated in 880nm infra-red, Photo diode, and HBU-200 for SS is incorporated in infra-red and 2 Photo diode detector that employs a double scattered-light comparison system.



Features at a glance MLSS- 96M/SS-96M

- Micro-processor based large LCD 10-digit numeric display
- 0/4-20mA current output, galvanically isolated
- 96M series has High, Low SPDT
- Panel Mounting IP54

Features at a glance HBU-200 Sensors

- Automatic rubber wiper cleaning device for prevent optical fouling
- Wetted parts are designed of corrosion-resistant materials
- Both immersible or sampling type is available (only SS Sensor)

Technical Data

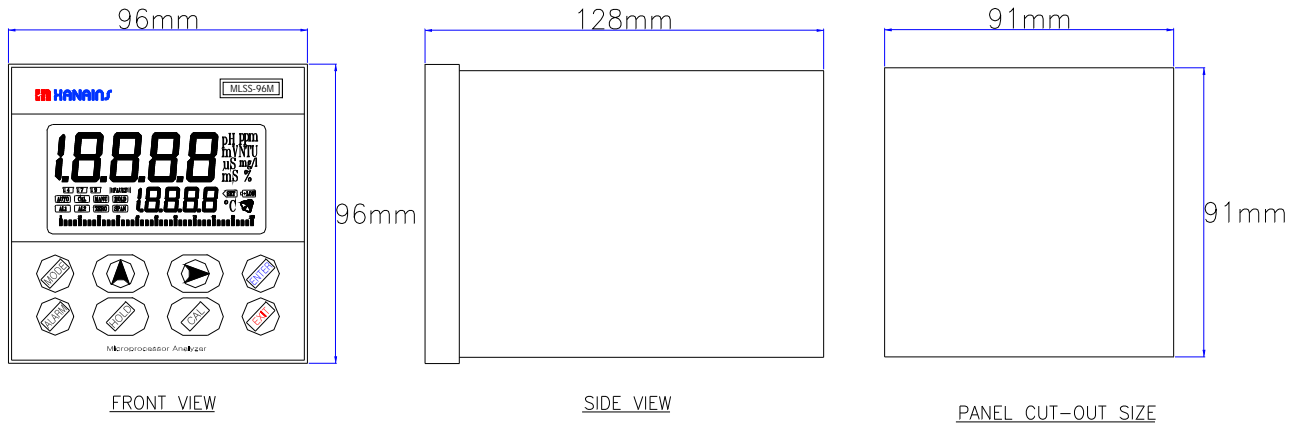
MLSS-96M / SS-96M Transmitter

Measuring range	MLSS : 0-19,999ppm, mg/l SS : 0-1,000ppm, mg/l
Power supply (main)	AC100V / 220V 50-60Hz 10%
Display	10-Digit LCD / 40-bargraph output percent / Message & Image icons
Current output	Isolated 0-20mA, 0-24mA, 4-20mA dip s/w selectable
Accuracy	± 1% of Full Scale
Repeatability	± 1% of Full Scale
Relay contact	High / Low AC 250V 5A
Function	Automatic cleaning time and period programmable
Ambient Temp.	-30 °C to + 70°C
Ambient humidity	0 to 100% R.H.
Enclosure	IP 54
Materials	Polycarbonate
Mounting method	Panel
Range adjustment	Programmable automatic
Calibration	Automatic / Manual
Dimensions (W x H x D)	96mm x 96mm x 128mm

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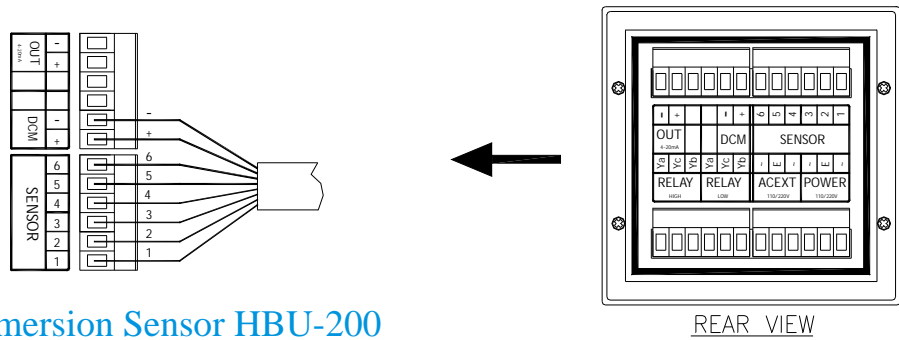
Water Quality Monitoring Instruments

Dimensions

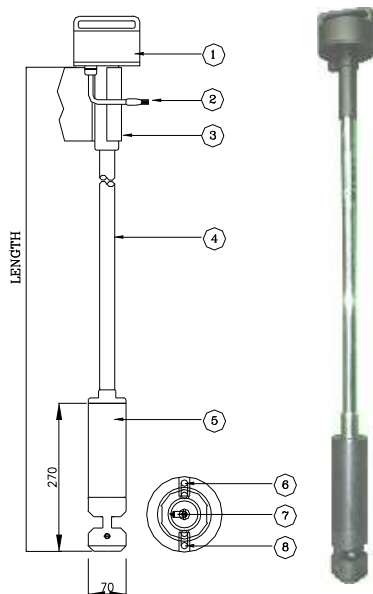


Electrical Connection

Sensor Connection



MLSS / SS Immersion Sensor HBU-200



- | | |
|----------------|------------------|
| ① Junction box | ⑤ Sensor body |
| ② Sensor cable | ⑥ Light source |
| ③ Bracket | ⑦ Cleaning wiper |
| ④ Pipe Holder | ⑧ Detector |

Technical Data

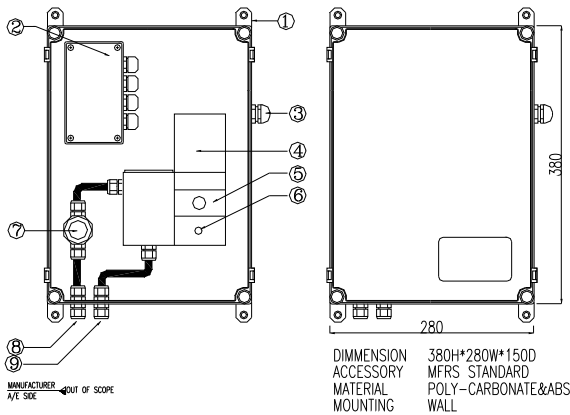
HBU-200 MLSS / SS Immersion Sensor

Measuring range	MLSS : 0-19,999ppm, mg/l SS : 0-1,000ppm, mg/l
Measuring method	MLSS : Infra-red , Photo diode SS : Infra-red , 2 Photo diode
Wave Length	880nm (ISO7027 standard)
Holder materials	SUS 304 or SUS 316
Operating temp. range	0 °C to 60 °C
Automatic Cleaner	Integral rubber wiper cleaning system
Cleaning time adjusting	Selectable 1 to 50 hour period time Selectable 1 to 10 times wiper rounding count
Enclosure	IP68
Housing Materials	Stainless Steel, Acetal
Characteristic	Linear based on Formazine
Mounting method	Stanchion
Max. Holder length	3m (More than 3m, contact maker)
Weight	8.0 kg

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Water Quality Monitoring Instruments

Suspended Solids Sampling Sensor HBU-100SP



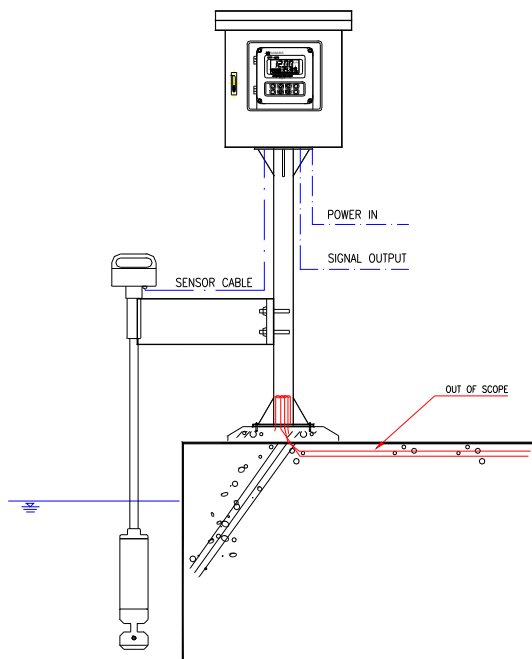
- ① Wall mount 8mm bolt
- ② Electrical box
- ③ Sensor cable lead-out
- ④ Cleaner drive box
- ⑤ Detector
- ⑥ Slurry drain of detect part
- ⑦ Regulator
- ⑧ Sampling inlet
- ⑨ Drain ATM

Technical Data

HBU-100SP Suspended Solids Sampling Sensor

Measuring range	SS : 0-1,000ppm, mg/l
Measuring method	SS : Infra-red , 2 Photo diode
Wave Length	880nm (ISO7027 standard)
Sample flow required	1.0 to 2.0 l/min (0.25 to 0.5 gal/min)
Sample temperature range	0°C to 50 °C (32 to 122 °F)
Automatic Cleaner	Integral rubber wiper cleaning system
Cleaning time adjusting	Selectable 1 to 10 hour period time Selectable 1 to 10 times wiper rounding count
Sample inlet fitting	6-8 Pneumatic tube
Overflow drain fitting	8-10 Pneumatic tube
Enclosure	NEMA 4X
Housing Materials	Poly-carbonate, Acetal
Characteristic	Linear based on Formazine
Mounting method	Stanchion or Wall
Dimension (W x H x D)	280(mm) x 380(mm) x 130(mm)
Weight	5.0 kg

Installation example



Measuring Principle

As MLSS or SS concentration increases from transparent state, the scattered light quantity increases, and the passing through the sample light quantity decreases. Generally, in measurement of low concentration, the method of scattered light measurement is employed, but in a range of 1,000 to 20,000mg/l, ppm, the method of passing through the sample light measurement is the best for high accuracy measurement (by Lambert-beer's equation). The photodiode receives the optical signal obtained equation and convert it to an electric signal. Thus the output proportional to MLSS concentration is obtained utilizing a log amplifier. As for the linearizer, adjust the log amplifier output so that a better output can be obtained when in actual sludge measurement.

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MLSS / SS monitoring system ordering

Code Description		
MLSS-96M	Microprocessor based transmitter (2"Pipe mounting or Wall mounting)	Power : AC110/220V 50-60Hz
SS-96M	Microprocessor based transmitter (2"Pipe mounting or Wall mounting)	Power : AC110/220V 50-60Hz

Measuring Range	
SS Measuring Ranges	MLSS Measuring Range
A _____ 0-100 ppm, mg/l	A _____ 0-5000 ppm, mg/l
B _____ 0-200 ppm, mg/l	B _____ 0-10000 ppm, mg/l
C _____ 0-500 ppm, mg/l	C _____ 0-15000 ppm, mg/l
D _____ 0-1000 ppm, mg/l	D _____ 0-20000 ppm, mg/l

Sensor Type	
I _____	Immersion type (HBU-200)
S _____	Sampling type (HBU-100SP, only Suspended Solids)

Holder Length(Immersion Type)	
1000mm 1500mm 2000mm 2500mm 3000mm	*Please specify holder length

Holder materials(Immersion Type)	
A _____	SUS 304
B _____	SUS 316

Cleaning Device	
N _____	None
W _____	Wiper Cleaning

SS-96M	A	I	1500	A	W
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Typical Model Number

* Specifications are subject to change without notice

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