

# ML-54

The ML-54 MLSS Meter is a portable sludge concentration meter that performs measurements of transmitted light to make simple on-site measurements of the concentration of activated sludge in sewage, waste, purification tanks and plant wastewater treatment systems and of sludge zone in nitrification and sedimentation tanks.

## Features

1. Sludge concentration and water depth can be measured simultaneously.
2. Automatic zero calibration functionality.
3. Extensive calculation functionality.

- JIS conversion (The JIS method referred to here is that of manual analysis by weight.)

Internal  $Y=aX+b$  calculation.

Sludge concentration in an aeration tank with large fluctuations in concentration can be read directly from the manual analysis (weight method) correlation correction. JIS conversion values can be read directly by performing measurements on multiple sludge samples of different concentrations with both manual analysis (weight method, Y value) and the MLSS Meter (ML-54, X value), finding the values of coefficients a and b, and using these values as inputs.

- Sludge volume index (SVI) and sludge return rate (r) calculation.

Input SV (sludge sedimentation rate) to find SVI (sludge volume index) and r (sludge return rate).



4. Sludge zone level detection (alarm on detection)  
Input the sludge zone concentration as a transmissivity percentage to obtain an alarm on reaching the sludge interface.
5. Low-battery-voltage warning display.
6. Automatic shutdown functionality for neglect to turn power off.  
Power turns off automatically ten minutes after end of use (time to shutdown may be set by user).
7. Connect to printer (optional) to print measurement readings.

## Principle of Measurement

The ML-54 MLSS Meter employs light absorption as its principle of measurement. This measurement method is grounded in the principle that “the absorbance of light in a solution is proportional to its concentration when the optical path length is uniform”.

Light given off by the light-emitting unit is absorbed and attenuated by MLSS (suspended solids in activated sludge) at the sensor placed in a measurement tank (an aeration tank). The ML-54 MLSS Meter finds MLSS concentration from the light absorption (the amount of light absorbed by material, expressed as a logarithm of the reciprocal of transmission) with little interference from the color of the sample and provides a digital readout.

Water depth is found from the signal from the pressure sensor of the sensor placed in a measurement tank and provided in a digital readout. SZ (Sludge Zone) may also be measured by setting the parameters.

## Carrying case



## Specifications

Measurement method	Transmitted light	
Measurement range	Sludge density	0-15000 mg/L
	Water depth	0-15 m (10 m standard cable)
	Sludge zone	10000mg/L or more
		SZ alarm (0.0-99.9% transmissivity)
Reproducibility	Sludge density	Readout $\pm 3\%$
	Water depth	$\pm 0.1$ m
Readouts	Concentration	LCD, 5 digits, 1 mg/L minimum
	Water depth	LCD, 3 digits, 0.1 m minimum
Light source	LED	
Sensor	Silicon photocell	
Calculations	1) JIS conversion	$Y=aX+b$
	2) Sludge volume index	$SVI=SV\%/MLSS\%$
	3) Sludge return rate	$r=SVI \times MLSS\%/[100-(SVI \times MLSS\%)]$
	4) Span	$X=A \times C/B$
	5) Auto-zero	
Specimen memory	1-99 specimens	
Error messages	1) Zero alignment failure	2) Print failure
	3) Low battery voltage	4) EEPROM error
Power source	Nickel-hydrogen batteries (4 cells)	
	Automatic shutdown functionality	
Uptime	20 hours continuous use	
Dimensions	Main unit	210 (W) x 85 (D) x 78 (H) mm
	Sensor	59 (diameter) x 153 (length) mm, 10-meter cable
Weight	Main unit	1.5 kg
	Sensor	2.5 kg
External output	RS232C, one port	
(Option)	Transmission rate: 9600 bps	

Options : SD1-31SJ (ML-54 printer)

