

# Colifast CALM

Rapid automated quantification of indicator bacteria in water

## CALM

The Colifast At-Line Monitor (CALM) is a fully automated system for monitoring of indicator bacteria in water. When placing the CALM on the water source the system will sample, analyse and send results automatically to operator. Applications span from raw water, in-process water and wastewater to environmental monitoring. For raw water application note please follow this [link](#).

The CALM system consists of a sampling and analysing unit, an incubator with a robotic arm that transfers water sample to the Colifast growth media and an industrial touchscreen computer.

The CALM is pre-programmed to sample automatically from the water source. The water samples are then incubated in the growth medium before they are analysed. The analysis results are also available via digital and analogue signals and/or GSM or through standard internet connection.

CALM is easily integrated into existing systems via standard PLC outputs.



## Colifast Growth Medium

The patented Colifast growth medium is supplied in pre-filled multitrays, Colifast Trays™.

Colifast manufactures growth media for detection of total coliforms, fecal coliforms, *E. coli* and *Pseudomonas aeruginosa*.

The flexible CALM system allows analyses for multiple indicator bacteria simultaneously. The system can operate, without any hands on, for more than two weeks before changing of growth media trays are necessary.



## Demowatercoli Verification

The CALM has been validated in the EU project Demowatercoli. The resulting report stated that the system was a «demonstration of a rapid microbial monitor for operations and quality decision-making in the water industries».

Verification results showed a 100% agreement with reference methods and an excellent sensitivity and specificity. Please contact Colifast AS for additional information about verification and references.

[www.colifast.no](http://www.colifast.no)

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## Technology

The patented Colifast technology combines the unique liquid media with fully automated detection systems.

The CALM adds water sample to growth medium, incubates the mix and subsamples for fluorescence measurements. The target groups of bacteria have inherent enzymes that convert a substrate in the Colifast medium to a fluorescent molecule. The molecule excited with UV light and emits fluorescence.

Detection of *Pseudomonas aeruginosa* is based on a method where cleavage by bacteria specific peptidase enzymes generates a fluorescent signal.

The selection for thermotolerant coliforms and total coliforms / *E. coli* / *Pseudomonas aeruginosa* is based on the incubator temperatures, respectively 44 °C and 37 °C.

The Colifast technology is timesaving, cost- and labour-reducing and does not require qualified personnel nor laboratory facilities.

## Specifications

Environment: Temperature 5 - 35 °C, relative humidity < 90%

Voltage: 110 - 240 (± 10%) V, VAC 50/60 Hz

Enclosure: Dust- and water-resistant locking cabinet, W x H x D = 50 (70) x 145 x 45 cm

Water sample: Provided as a continuous overflowing stream at ambient pressure, in a well mounted at the side of the enclosure

Power consumption: Max. 650 W

Optional: Available LAN access

Optional: Available input ports (digital and analogue) on PLC or other industrial interface system



## Available Analysis Formats

Format	Presence/Absence	Most Probable Number	Estimated Semi Quantification	MU Production MU = Methylumbelliferyl
Levels of bacteria	≥ 1 cfu/100 mL	Low, medium (1 - 5000 cfu/100 mL)	Low to high (> 1 cfu/25 mL)	Medium to high (> 500 cfu/100 mL)
Results reported as	Presence/absence	Number of bacteria/100 mL	Number of bacteria/100 mL	Number of bacteria/100 mL
Time to result	10 - 12 h <i>E. coli</i> / 9 - 11 h fecal coliforms	10 - 12 h <i>E. coli</i> / 9 - 11 h fecal coliforms	4 (high) - 12 (low) h	2 h
Method	Bacterial growth. Based on fluorescence above (presence) or below (absence) of a threshold value.	Bacterial growth. Based on number of positive vials (above threshold value) Automated MPN calculation and presentation of results.	Bacterial growth. Time to detect. Based on time to reach threshold level linked to a semi-quantification table based on empirical data. Automated ESQ calculation and presentation of results.	Enzymatic activity. Increase indicate level of bacterial contamination.
Comments	<ul style="list-style-type: none"> <li>Viable bacteria</li> <li>Robust method</li> <li>High specificity</li> </ul>	<ul style="list-style-type: none"> <li>Viable bacteria</li> <li>Robust method</li> <li>High specificity</li> </ul>	<ul style="list-style-type: none"> <li>Viable bacteria</li> <li>Quick results when bacterial levels are high</li> <li>Many samples per run</li> <li>Wide range</li> <li>High specificity</li> </ul>	<ul style="list-style-type: none"> <li>Viable and non-viable bacteria</li> <li>Rough estimation</li> <li>Very quick result</li> </ul>

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