CCM
BROCHURE

The CCMs calculate the **concentration** of a solution by using the different **measuring methods**, and sometimes by combining them.

Introduction

The Rhosonics CCM stands for Chemical Concentration Meter and this category of instruments allows measuring the concentration of chemicals and solutions in real-time. The CCMs are designed to withstand many different chemicals and to match harsh process conditions.

Features and benefits

The major features and benefits of the CCMs are:
• Real-time measurement
• Chemical resistant sensors
• Easy operation and installation

Measuring methods

• Speed of sound

The speed of sound is determined by measuring the time that the ultrasonic wave takes to travel over a known distance in the liquid, known as the time of flight.

• Temperature

The temperature is measured by a Pt100, used to obtain an accurate speed of sound.

• Conductivity

The conductivity is measured by applying electrical current to a sensor immersed in a solution and measuring the resulting voltage.

Different models

There are different models of CCMs that can be used for different applications and in different industries:

CCM 8500
Measures the concentration of one chemical in a solution. It uses the speed of sound and temperature for that. It can be used to measure the concentration of H_2SO_4 in an acid plant, for example.

CCM 9500
Measures the concentration of two chemicals in a solution. It uses the speed of sound, temperature and conductivity for that. This technology is used in the Copper Foil plants to measure H_2SO_4 & Cu^{++}.

CCM B30
Measures the concentration of one, two or three chemicals in a solution. This meter was specially developed to measure $TMAH+PR+(CO_3)$ in Flat Panel Display manufacturing sites.

CCM COD
Measures the COD concentration of sugar-based wastewaters. This meter was specially developed to be used in the inlet of breweries WWTP, and it can also be used for the same application in soft-drinks WWTP.

Installation

The CCMs can be installed inline with the use of a pipe integration system, and they can also be mounted to tanks with the use of sensors designed for that purpose.

Applications

The CCMs can be used in a variety of applications whenever there is the need for measuring chemical concentrations. Some of the industries where this technology can be used are:

• Copper Foil (H_2SO_4 & Cu^{++})
• Zinc refineries (H_2SO_4 & Zn)
• Breweries WWTP
• Flat Panel Display manufacturing plants

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Datasheet

*specs are slightly different per model

	Model	8500	9500	COD	B30
GENERAL	Method	Speed of sound, temperature	Speed of sound, conductivity, temperature	Speed of sound, attenuation, conductivity and temperature	Speed of sound, conductivity and temperature
	Readings	Concentration in WT% or g/l; Temperature in °Celsius	Conductivity (mS/cm); TSS (wt% or g/l); TDS (wt% or g/l); Temperature (°C)	COD in gl, TSS in wt% or g/l, TDS in wt% or g/l, Temperature in °Celsius	Concentration in WT% or g/l; Temperature in °Celsius
	Accuracy	Up to 0.02 wt% (depends on liquid settings)	Up to 0.02 wt% (depends on liquid settings)	o.1 g/l COD, 0.1 mS/cm conductivity. In the inlet of breweries WWTP in a range of 0-50 g/l at 18-50 in °Celsius	Up to 0.001 wt% (1 ppm)
TRANSMITTER	Power Supply	24 VDC (18...36V), 35 Watt	24 VDC (18...36V), 35 Watt	18...32 VDC	18...32 VDC
	Output	2x 4-20mA, 2x alarm output, 1x RS-485/422 via Modbus Optional: 4-20 mA input, Ethernet, HART, Profibus	2x 4-20mA, 2x alarm output, 1x RS-485/422 via Modbus Optional: 4-20 mA input, Ethernet, HART, Profibus	2x 4-20mA, 2x alarm output, 1x RS-485/422 via Modbus Optional: 4-20 mA input, Ethernet, HART, Profibus	Modbus RTU over RS-232
	Data logging	via USB stick (start-stop) Note: max. 65535 entries of data can be stored	via USB stick (start-stop) Note: max. 65535 entries of data can be stored	via USB stick (start-stop) Note: max. 65535 entries of data can be stored	Continuous; retrievable via USB stick
	Cable glands	5x M20X1.5 Note: Ø 4-9 mm cable	5x M20X1.5 Note: Ø 4-9 mm cable	5x M20X1.5 Note: Ø 4-9 mm cable	2x M16X1.5 for Ø2-6 mm cable
	Ambient temp	-20 °C to +65 °C (-4 °F to 149 °F)	-20 °C to +65 °C (-4 °F to 149 °F)	-20 °C to +65 °C (-4 °F to 149 °F)	5 °C to 60 °C (41 °F to 140 °F)
	Humidity	< 95% at 40 °C (noncondensing)	< 95% at 40 °C (noncondensing)	< 95% at 40 °C (noncondensing)	< 95% at 40 °C (noncondensing)
	Protection rating	IP65, NEMA 4X	IP65, NEMA 4X	IP65, NEMA 4X	IP65, NEMA 4X
	Display	5,7" Color Touch Screen	5,7" Color Touch Screen	5,7" Color Touch Screen	240x128 dots (WxH), 5 colors
	Material	Epoxy coated steel (Optional: SS304 or SS316)	Epoxy coated steel (Optional: SS304 or SS316)	Epoxy coated steel (Optional: SS304 or SS316)	POM/Stainless Steel, Wetted parts in Ceramics and PVDF
	Installation	Inline or side-mounted to tanks	Inline via a spool piece or cell (3/4"); and in-tank via tank sensor	Inline via a spool piece; and in-tank via tank sensor	Via a by-pass (PVDF BSPT 3/8" female connector)

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