



OPTISENS CAC 050 Technical Datasheet

OPTISENS 050 Converter for conductivity measurements

- Easy-to-use, reliable converter of the OPTISENS 050 series for use in water analysis
- Integrated controller and temperature compensation
- Excellent price/performance ratio

OPTISENS CAC 050 Converter for conductivity measurements

Thanks to the combination of the practical OPTISENS 050 hardware and the versatile OPTISENS 1000 sensors, the CAC 050 is ideally suited for a wide range of water analysis measurement tasks. The CAC 050 works according to the conductive principle, which is primarily used in media which are low contaminated and non-corrosive, such as pure water, and in steam and cooling water applications.



- Backlit, two-line alphanumeric liquid crystal display
- Membrane keyboard

Highlights

- 1 input for an OPTISENS CAS 1000 sensor
- 1 analogue output (switchable between the measured value or steady controller)
- Integrated controller and two limit switches and an alarm relay to activate solenoid valves, dosing pumps, etc.
- Integrated temperature compensation and display of temperature
- Cell constant of the measuring cell is programmable
- Automatic selection of the optimum measurement parameters
- Simple, text-guided device operation
- Excellent price/performance ratio

Industries:

- Power plants
- Water industry
- Food industry
- Paper industry
- Chemicals

Applications

- Quality control of steam and cooling water
- Monitoring of filters / ionic exchangers
- Quality control of ultrapure water, drinking water

Options and variants



OPTISENS 050 Compact design and two enclosure variants:

The CAC 050 has two enclosure designs available to offer flexible use in various installation situations:

- CAC 050 R for installation in control cabinets/panels
- CAC 050 W for wall installation and mounting on panels (also suitable for outdoor installations – protection class IP 65)

Other options:

- Serial interface RS 485
- External Profibus DP module



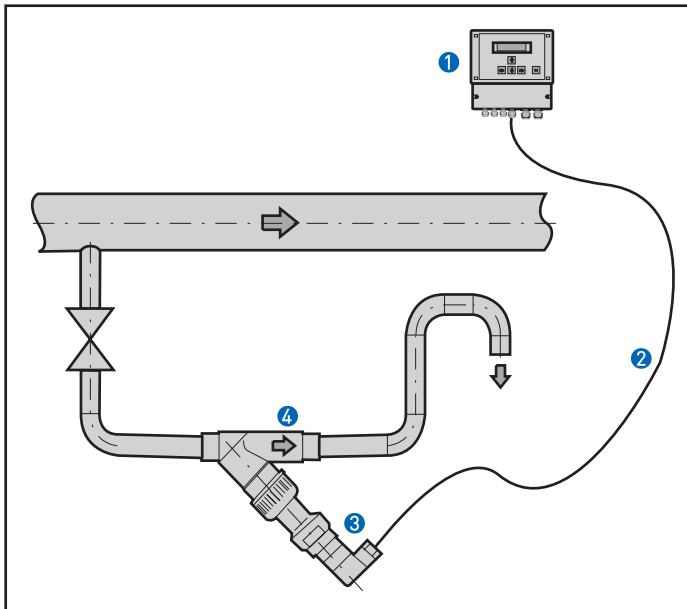


OPTISENS CAS 1000 sensors:

An OPTISENS sensor of the CAS 1000 series with an integrated PT100 can be connected to each CAC 050. The sensors are available with various cell constants and can thus cover a wide area of use. Other measurement ranges are available on request.

- CAS 1000: conductive conductivity measuring cell (available with cell constants $c=0.05$ $c=0.2$ and $c=1.0$)

Conductivity measuring system with a conductivity sensor



- ① CAC 050 W Converter
- ② CAW 1000 Sensor cable
- ③ CAS 1000 Conductive conductivity sensor
- ④ MAA 1000 Flow assembly

Technical data

Measuring system

Measuring principle	Conductive conductivity measurement with two electrode measuring cells
Application range	Conductivity measurement in liquids
Modular design	A complete measuring system consists of:
	- CAC 050 Converter,
	- CAS 1000 Sensor,
	- MAA 1000 Assembly, - Cables and connecting elements.

Converter

Rack-mount enclosure (R)	CAC 050 R for installation in control cabinets/panels
Field housing (W)	CAC 050 W for wall installation and mounting on panels (also suitable for outdoor installations – protection class IP 65)

Communication

Analogue output	0/4...20 mA analogue output
Relay	Three potential-free contacts (2 x controller, 1 x alarm); freely-programmable
Digital communication	RS485 interface (optional), Profibus DP module (acyclic -> DP-V1) as accessory
Temperature compensation	Manual or automatic with Pt100
Temperature coefficient	Adjustable from 0.0...8.0% / °C ; for the measuring range 0..2 µS/cm a temperature curve for ultrapure water can also be selected

Display

LCD display	LCD display, two-line, 2 x 16 characters, backlit,
	Display of:
	Measured value with unit
	Temperature with unit
	Switching states of the relays
	Status of sensor, calibration
Operating elements	Membrane keypad with five keys
Operating language	German, English, Swedish, Spanish, French

Measurement accuracy

	$\leq \pm 1\%$ of the measurement range
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Operating conditions

Ambient temperature	0...+50°C / 32...+122°F
Air humidity	0...90% (at 40°C / 104°F), non-condensing
Storage temperature	-20...+65°C / -4...+149°F

Materials

Enclosure	CAC 050 R: Noryl
	CAC 050 W: ABS

Electrical connections

Power supply	230 VAC +/-10%, 50/60 Hz, alternatively 117 VAC or 24 VAC
Power consumption	10 VA
Connections	CAC 050 R: screw terminals for cables of max. 1.5 mm ²
	CAC 050 W: spring clips for cables of max. 1.5 mm ²
Internal fuse	CAC 050 R: none
	CAC 050 W: 230 V: 63 mA slow-blow; 117 V: 125 mA medium time-lag; 24 V: 800 mA slow-blow

Measuring range

Cell constant (recommended)	
c = 0.05/cm	0.00...20.00 M Ω /cm
c = 0.05/cm	0.000...2.000 μ S/cm
c = 0.05/cm	0.00...20.00 μ S/cm
c = 0.05/cm	0.0...200.0 μ S/cm
c = 0.2/cm	0.000...2.000 mS/cm
c = 1/cm	0.00...20.00 mS/cm
Temperature measuring range	-30 ...+140°C / -22...+284°F

Controller

Controller variants	ON/OFF controller, optionally with hysteresis
(switchable)	P controller as pulse pause, pulse frequency or steady controller
	PI controller as pulse pause, pulse frequency or steady controller
Switching points	2 switching points with adjustable direction
Hysteresis	Freely adjustable within the measuring range
P range XP	Freely adjustable within the measuring range
Integral time TN	0...2000 s
Minimum pulse	0.1...9.9 s
Pulse + pause time	02...99 s
Pulse frequency	00...72 corresponds to 0...7200 pulses/hr.
Switch-on delay	0...200 s
Limit values/alarm function	Min. and max. limit value and delay time
	NC contact, NO contact, pulse or permanent contact
Dosage control	0... 90 min

Inputs and outputs

Relay	Three potential-free contacts (2 x controller, 1 x alarm), 6 A, 250 V, max. 550 VA
Analogue output	0/4...20 mA galvanically isolated, max load 500 Ohm
Analogue inputs	1 input for conductivity sensor
	1 input for Pt100
Digital input	External controller stop or flow measurement
Digital interface (option)	RS485, Baud rate 9600, data format 8 bit, one Start bit and one Stop bit, no parity

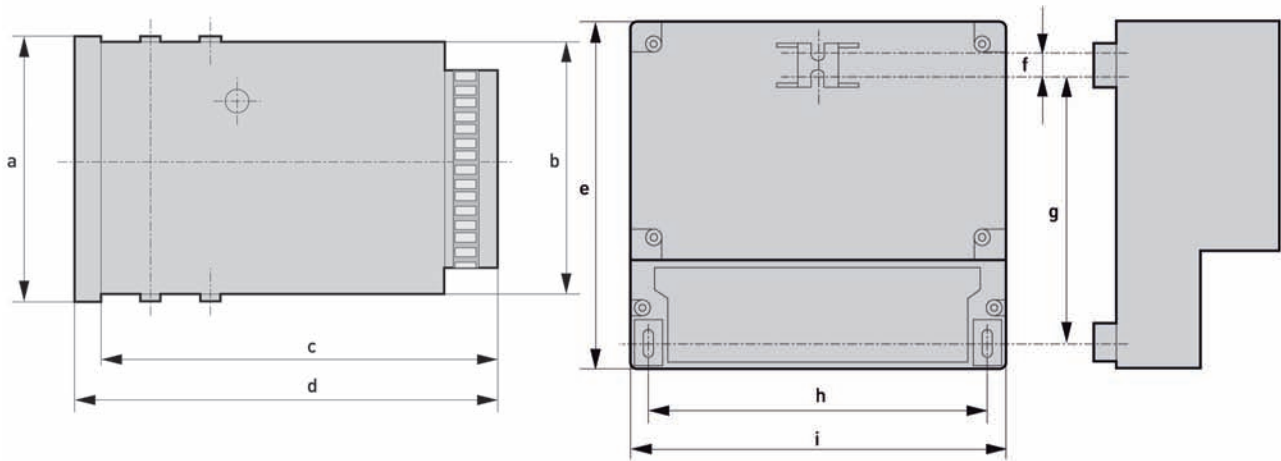
Protection class

CAC 050 R	IP 54 (Front), IP 30 (Enclosure)
CAC 050 W	IP 65

Approvals

Non-Ex	Standard
Approval symbol	CE
EMC (2004/108/EC)	Interference emission to EN 55011:1998 + A1:1999+A2:2002; immunity to EN 61000-6-2:2001
Low Voltage Directive (2006/95/EC)	Safety requirements for electrical measurement, control and laboratory units according to EN 61010-1:2002-08

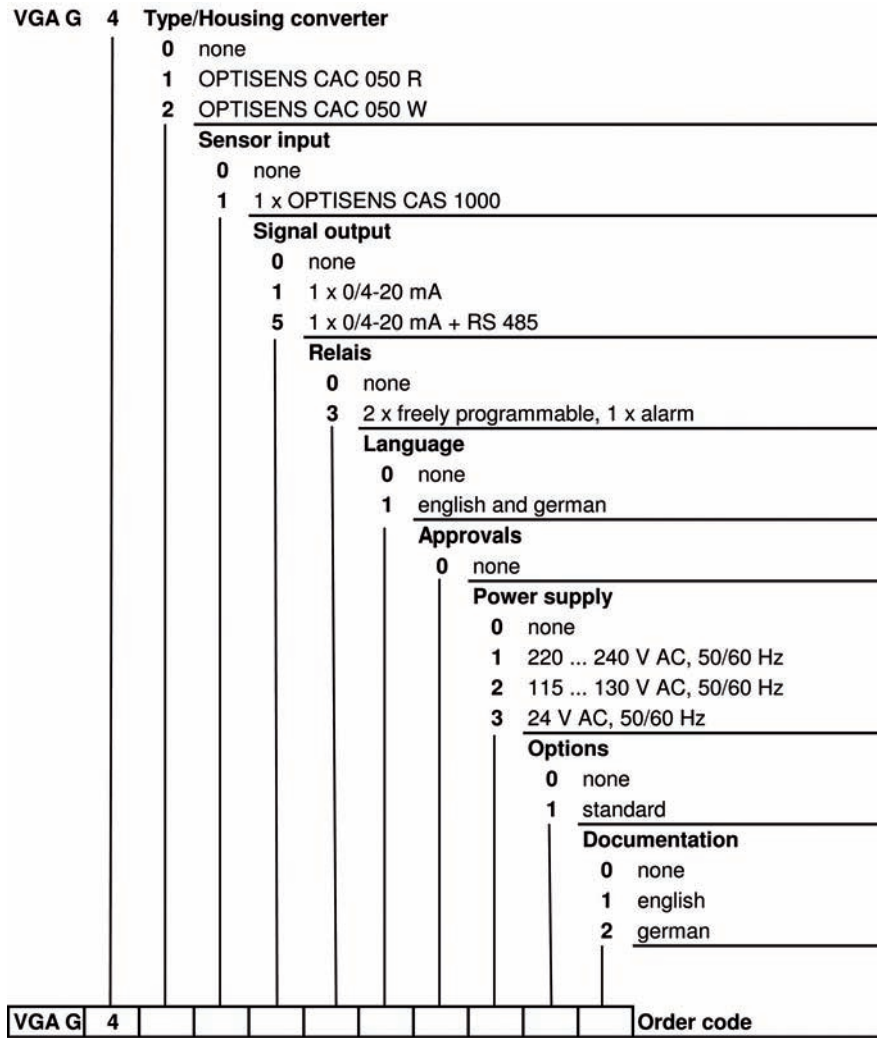
Dimensions and Weight



Dimensions	
a	96 mm x 96 mm
b	90 mm x 90 mm
c	129 mm
d	137 mm
e	160 mm
f	15 mm
g	120 mm
h	151 mm
i	165 mm

Weight	
Rack-mount enclosure	0.75 kg
Wall-mount enclosure	0.95 kg

Order structure



Accessories

Order number	Designation
VGA Z C 08000	Stainless steel mounting post, 1700 height, with horizontal bar
VGA Z C 08010	Mounting plate with sunshield for OPTISENS converter
VGA Z C 08040	Profibus DP module for OPTISENS 050 converter



KROHNE Product Overview

- Electromagnetic flowmeters
- Variable area flowmeters
- Mass flowmeters
- Ultrasonic flowmeters
- Vortex flowmeters
- Flow controllers
- Level measuring instruments
- Pressure gauges
- Temperature measuring instruments
- Water solutions & analysis
- Oil and gas turnkey solutions

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