



OPTISENS AAC 050 Technical Datasheet

OPTISENS 050 Converter for free chlorine and oxygen

- Easy-to-use, reliable converter of the OPTISENS 050 series for use in water and wastewater applications
- Automatic sensor cleaning (ASR)
- Excellent price/performance ratio

OPTISENS AAC 050 Converter for the measurement of free Cl₂ and O₂

Thanks to the combination of the practical OPTISENS 050 hardware and the versatile OPTISENS 1000 sensors, the AAC 050 is ideally suited for a wide range of water and wastewater measurement tasks. Besides the measurement of free Cl₂ and O₂, the universal converter can be supplied preconfigured for the measurement of other parameters such as chlorine dioxide, ozone or peroxide.



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

Highlights

- 1 input for an OPTISENS AAS 1000 sensor
- 1 analogue output (switchable between the measured value or continuous controllers)
- Integrated controller and two limit switches and an alarm relay to activate solenoid valves, dosing pumps, etc.
- Temperature compensation either manually or using temperature sensor
- Simple, text-guided device operation
- Excellent price/performance ratio
- Optional - patented automatic sensor cleaning (ASR)

Industries

- Water/wastewater industry
- Power plants
- Chemical industry
- Paper industry
- Food industry

Applications

- Quality control of water/wastewater
- Monitoring and control of water and wastewater disinfection
- Monitoring of water treatment for boilers

Options and variants



OPTISENS AAC 050 - Two versions and two enclosure types

Depending on the measuring task, the AAC 050 is available in the following versions:

- AAC 050 to measure free chlorine
- AAC 050 to measure dissolved oxygen

In addition, there are two enclosure designs available to offer flexible use in various installation situations:

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



Other options:

- Serial interface RS 485
- External Profibus DP module



OPTISENS AAS 1000 sensors

An OPTISENS sensor of the AAS 1000 series can be connected to each AAC 050. Additional sensors (for special parameters, other measurement ranges or special conditions of use) are available on request.

- AAS 1000 sensor for free chlorine (with gold electrodes)
- AAS 1000 sensor for dissolved oxygen (with integrated NTC)

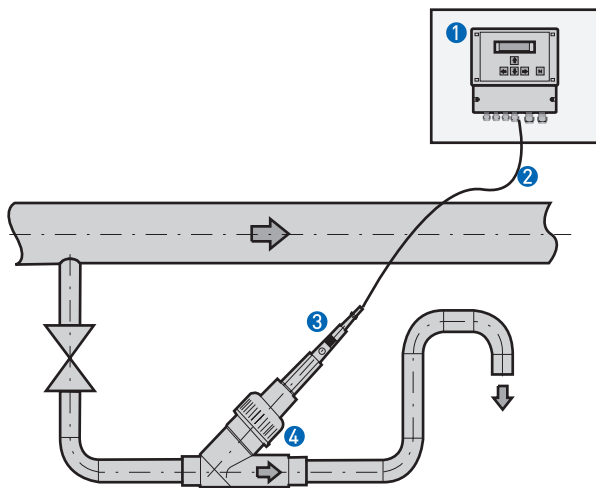




Automatic sensor cleaning (ASR):

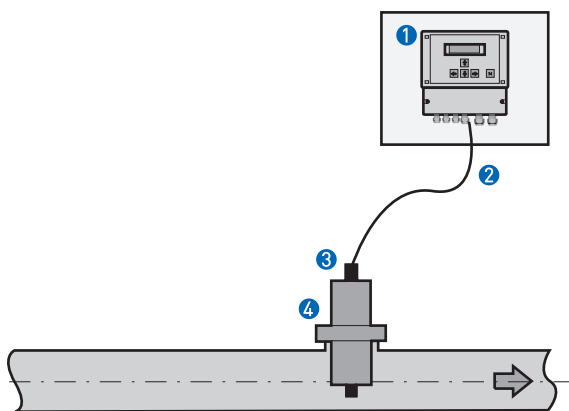
Integrated automatic sensor cleaning (ASR) is optionally available for the AAC 050 (Caution! Not for oxygen!). The ASR works using a patented method to clean the electrodes according to the electrolytic principle. Cleaning is fully automatic, without any addition of chemicals and can even remove obstinate coatings and organic contamination. In addition, rust and other oxide formation are reduced.

Measuring system for free chlorine in a flow assembly



- ① AAC 050 W Converter
- ② AAW 1000 Sensor cable
- ③ AAS 1000 Sensor for free chlorine
- ④ MAA 1000 Flow assembly

Measuring system for measuring dissolved oxygen



- ① AAC 050 W Converter
- ② AAW 1000 Sensor cable
- ③ AAS 1000 Sensor for dissolved oxygen
- ④ MAA 1000 Screw-in adapter for DN25 process connection

Technical data

Measuring system

Measuring principle	Amperometric or amperometric-potentiostatic
Application range	Measurement of the concentration of oxidising or reducing substances in liquids
Modular design	A complete measuring system consists of:
	<ul style="list-style-type: none"> - AAC 050 Converter, - AAS 1000 Sensor, - MAA 1000 Assembly, - Cables and connecting elements.

Converter

Rack-mount enclosure (R)	AAC 050 R for installation in control cabinets/panels
Field housing (W)	AAC 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

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, Dutch, Spanish, French, Polish, Czech

Accuracy

	$\leq \pm 0.01 \text{ mg/l}$ (at $\text{H}_2\text{O}_2 \leq \pm 1 \text{ mg/l}$)
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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
Flow rate	$\geq 30.0 \text{ /hr}$

Materials

AAC 050 R: Noryl	AAC 050 W: ABS
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Electrical connection

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

Measurement ranges

0.00...4.00 mg/l	Cl ₂ Free chlorine
0.00...20.00 mg/l	O ₂ Dissolved oxygen
0.00...20.00 mg/l	Cl ₂ Free chlorine (special design)
0.00...4.00 mg/l	O ₃ Ozone (special design)
0.00...4.00 mg/l	ClO ₂ Chlorine dioxide (special design)
0...100 mg/l	H ₂ O ₂ Hydrogen peroxide (special design)

Measurement range

Temperature measuring range	-30 ... +140°C / -22...284°F
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Controller

Controller variants (switchable)	ON/OFF controller, optionally with hysteresis
	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 Ω
Analogue inputs	1 input for Cl ₂ , ClO ₂ , O ₂ , O ₃ or H ₂ O ₂ ,
	1 input for Pt100 or NTC (for O ₂)
Digital input	External controller stop or flow measurement
Digital interface (option)	RS 485, Baud rate 9600, data format 8 bit, one Start bit and one Stop bit, no parity

Protection classes

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

Approvals

Non-Ex	Standard
Approval symbol	CE
EMC (2004/108/EC)	Interference emission to EN 5011:1998 + 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

Temperature compensation

	Manual or automatic with Pt100 or NTC (for O ₂)
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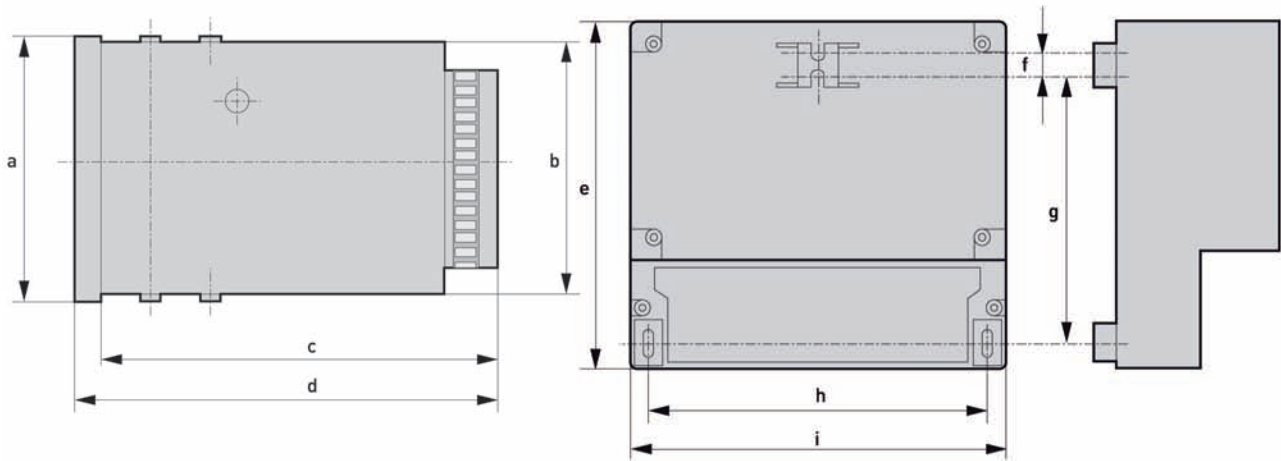
Calibration

	Single-point calibration through comparative measurement, air calibration for oxygen, measuring range switching
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Option

	Automatic electrode cleaning according to the electrolytic principle. The ASR option is detected automatically on connection. Caution! ASR is not available for the oxygen sensor!
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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

VGA D	4	Type/Housing converter
		0 none
		1 OPTISENS AAC 050 R
		2 OPTISENS AAC 050 W
		Sensor input
		0 none
		1 1 x OPTISENS AAS 1000 Cl sensor
		2 1 x OPTISENS AAS 1000 O2 sensor
		3 1 x OPTISENS AAS 1000 H2O2 sensor
		Signal output
		0 none
		1 1 x 0/4-20 mA
		5 1 x 0/4-20 mA + RS 485
		Relais
		0 none
		3 2 x freely programmable, 1 x alarm
		Language
		0 none
		1 english and german
		Approvals
		0 none
		Power supply
		0 none
		1 220 ... 240 V AC, 50/60 Hz
		2 115 ... 130 V AC, 50/60 Hz
		3 24 V AC, 50/60 Hz
		Options
		0 none
		C 1 x sensor self cleaning ASR
		Documentation
		0 none
		1 english
		2 german
VGA D	4	Order code

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 08020	Temperature sensor Pt100 G 120 PG for OPTISENS 050 converter
VGA Z C 08030	Cable for OPTISENS 050 temp. sensor (3 m)
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

Addresses:

Germany

Northern sales office

KROHNE Messtechnik GmbH & Co. KG
Bremer Str. 133
D-21073 Hamburg
Phone: +49 (0)40 767 3340
Fax: +49 (0)40 767 33412
nord@krohne.de
ZIP code: 10000 - 29999, 49000 - 49999

Western and middle sales office

KROHNE Messtechnik GmbH & Co. KG
Ludwig-Krohne-Straße
D-47058 Duisburg
Phone: +49 (0)203 301 416
Fax: +49 (0)203 301 10416
west@krohne.de
ZIP code: 30000 - 34999, 37000 - 48000, 50000 - 53999, 57000 - 59999, 98000 - 99999

Southern sales office

KROHNE Messtechnik GmbH & Co. KG
Landsberger Str. 392
D-81241 Munich
Phone: +49 (0)89 121 5620
Fax: +49 (0)89 129 6190
sued@krohne.de
ZIP code: 0 - 9999, 80000 - 89999, 90000 - 97999

Southwestern sales office

KROHNE Messtechnik GmbH & Co. KG
Rüdesheimer Str. 40
D-65239 Hochheim/Main
Phone: +49(0)6146 827 30
Fax: +49 (0)6146 827 312
rhein-main@krohne.de
ZIP code: 35000 - 36999, 54000 - 56999, 60000 - 79999

Instrumentation and control equipment catalog

TABLAR Messtechnik GmbH
Ludwig-Krohne-Straße 5
D-47058 Duisburg
Phone: +49 (0)2 03 305 880
Fax: +49 (0)2 03 305 8888
kontakt@tablar.de www.tablar.de

KROHNE sales companies

International

Australia

KROHNE Australia Pty Ltd
Quantum Business Park 10/287
Victoria Rd Rydalmere NSW 2116
Phone: +61 2 8846 1700
Fax: +61 2 8846 1755
krohne@krohne.com.au

Austria

KROHNE Gesellschaft m.b.H.
Modecenterstraße 14
A-1030 Vienna
Phone: +43 (0)1/203 45 32
Fax: +43 (0)1/203 45 32 99
info@krohne.at

Belgium

KROHNE Belgium N.V.
Brusselstraat 230
B-1702 Groot Bijgaarden
Phone: +32 (0)2 4 66 00 10
Fax: +32 (0)2 4 66 08 00
krohne@krohne.be

Brazil

KROHNE Conaut Controles
Automaticos Ltda.
Estrada Das Águas Espraiadas, 230
C.P. 56 06835 - 080 EMBU - SP
Phone: +55 (0)11-4785-2700
Fax: +55 (0)11 4785-2768
conaut@conaut.com.br

China

KROHNE Measurement Instruments
(Shanghai) Co. Ltd., (KMIC)
Room 1501
1033 Zhaoyang Road
Shanghai 200030
Phone: +86 21 6487 9611
Fax: +86 21 6438 7110
info@krohne-asia.com

Czech Republic

Krohne CZ, spol. s r.o.
Soběsická 156
63800 Brno
Phone: +420 (0)545.242 627
Fax: +420 (0)545 220 093
brno@krohne.cz

France

KROHNE S.A.S.
Les Ors BP 98
F-26103 ROMANS Cedex
Phone: +33 (0)4 75 05 44 00
Fax: +33 (0)4 75 05 00 48
info@krohne.fr

Great Britain

KROHNE Ltd.
Rutherford Drive
Park Farm Industrial Estate
Wellingborough
Northants NN8 6AE
Phone: +44 (0)19 33 408 500
Fax: +44 (0)19 33 408 501
info@krohne.co.uk

CIS

Kanex KROHNE Engineering AG
Business-Centre Planeta
Office 404 ul.
Marxistskaja 3
109147 Moscow/Russia
Phone: +7 (0)095 911 7165
Fax: +7 (0)095 742 8873
krohne@dol.ru

India

Krohne Marshall Ltd.
A-34/35, M.I.D.C. Industrial Area,
H-Block
Pimpri Poona 411018
Phone: +91 (0)202 744 2020
Fax: +91 (0)202 744 2020
pcu@vsnl.net

Iran

KROHNE Liaison Office
North Sohrvardi Ave. 26,
Sarmad St., Apt. #9
Tehran 15539
Phone: +9821 8874 5973
Fax: +9821 8850 1268
krohne@krohneiran.com

Italy

KROHNE Italia Srl.
Via V. Monti 75
I-20145 Milan
Phone: +39 02 4300 661
Fax: +39 02 4300 6666
info@krohne.it

Korea

KROHNE Korea
Room 508 Miwon Bldg 43
Yoido-Dong Youngdeungpo-Ku
Seoul, Korea
Phone: 00-82-2-782-1900
Fax: 00-82-2-780-1749
mail@krohne.co.kr

Netherlands

KROHNE Nederland B.V.
Kerkeplaat 14
NL-3313 LC Dordrecht
Phone: +31 (0)78 630 6200
Fax: +31 (0)78 630 6405
Service Direct: +31 (0)78 630 6222
info@krohne.nl

Norway

KROHNE Norway A.S.
Ekholtveien 114
NO-1521 Moss
Phone: +47 (0)69 264 860
Fax: +47 (0)69 267 333
postmaster@krohne.no

Poland

KROHNE Polska Sp.z o.o.
ul. Stary Rynek Oliwski 8a
80-324 Gdansk
Phone: +48 (0)58 520 9211
Fax: +48 (0)58 520 9212
info@krohne.pl

Switzerland

KROHNE AG
Uferstr. 90
CH-4019 Basel
Phone: +41 (0)61 638 30 30
Fax: +41 (0)61 638 30 40
info@krohne.ch

Singapore

Tokyo Keiso - KROHNE (Singapore)
Pte. Ltd.
14, International Business Park,
Jurong East
Chiyoda Building, #01-01/02
Singapore 609922
Phone: (65) 6567 4548
Fax: (65) 6567 9874
tks@tokyokeiso-krohne.com.sg

Republic of South Africa

KROHNE Pty. Ltd.
Bushbock Close
Corporate Park South
Midrand, Gauteng
P.O. Box 2069
Midrand, 1685
Tel.: +27 (0)11 314 1391
Fax: +27 (0)11 314 1681
midrand@krohne.co.za

Spain

I.I. KROHNE IBERIA, S.r.l.
Poligono Industrial Nilo
Calle Brasil, nº. 5
28806 Alcalá de Henares Madrid
Phone: +34 (0)91 883 2152
Fax: +34 (0)91 883 4854
krohne@krohne.es

USA

KROHNE, Inc.
7 Dearborn Road
Peabody, MA 01960
Phone: +1 (800) FLOWING
Phone: +1 (978) 535 6060 (in MA)
info@krohne.com

Representatives

Algeria
Argentina
Cameroon
Canada
Chile
Columbia
Croatia
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Turkey
Venezuela
Yugoslavia

Other countries

KROHNE Messtechnik GmbH & Co. KG
Ludwig-Krohne-Str. 5
D-47058 Duisburg
Phone: +49 (0)203 301 0
Fax: +49 (0)203 301 389
export@krohne.de

KROHNE