



OPTISENS PAM 2080

Technical Datasheet

Measuring system for NH_4 and NO_3 concentration

- Optimized ion-selective technology for direct and continuous measurement
- Easy installation and low maintenance requirements
- Self monitoring and self cleaning for high reliability

Optimal measuring system for use in Waste Water Treatment plants

The **OPTISENS PAM 2080** technology allows insitu measurement of Ammonium NH_4 and Nitrate NO_3 concentration without need of additional sample preparation or the use of chemicals. The compact system can easily be installed and operated with long service intervals for optimal cost of ownership. The self monitoring and self cleaning features together with the compensation for Sodium and Chlorides matrix changes result in highest reliability in municipal waste water treatment plants.



- ① Converter with graphic display
- ② Immersion holder
- ③ NH_4/NO_3 sensor and compensation sensors
- ④ Air connection for self cleaning

Highlights

- Optimal cost of ownership
- Compact system for easy installation
- Long maintenance intervals between 3-6 month
- Easy maintenance through simplified electrode exchange
- Self cleaning through air blast
- Self monitoring for reliable operation
- Fast response time through direct and continuous measurement
- Optimized compensation of Sodium and Chloride matrix changes
- No moving parts, no chemicals consumption
- No additional sample preparation or filtration necessary
- Can be integrated into network with multiple sensors

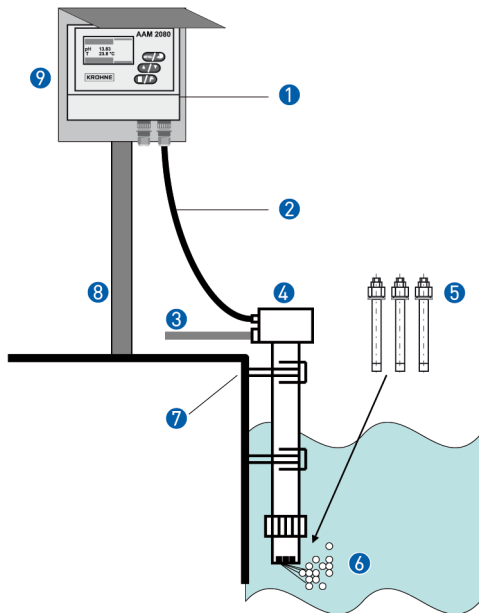
Industries

- Municipal Waste Water Treatment plants
- Water monitoring stations

Applications

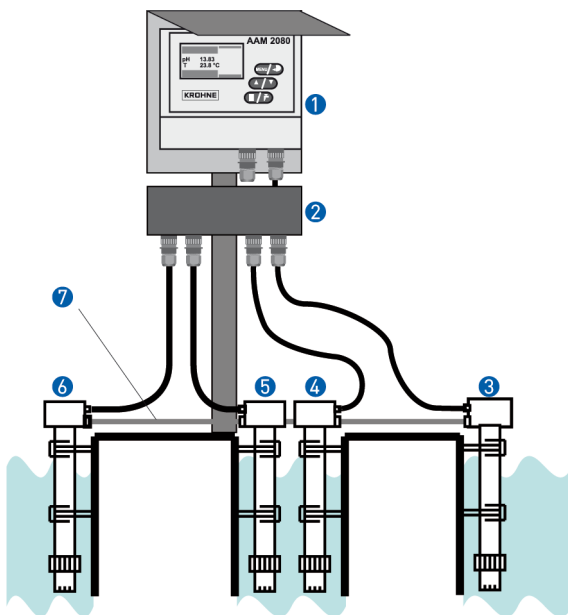
- Monitoring and control of biological treatment
- Nitrification and Denitrification
- Sequent batch reactors SBR
- Aeration control for energy saving
- Return activated sludge RAS control for NH_4 balancing
- Influent and final effluent monitoring

Installation



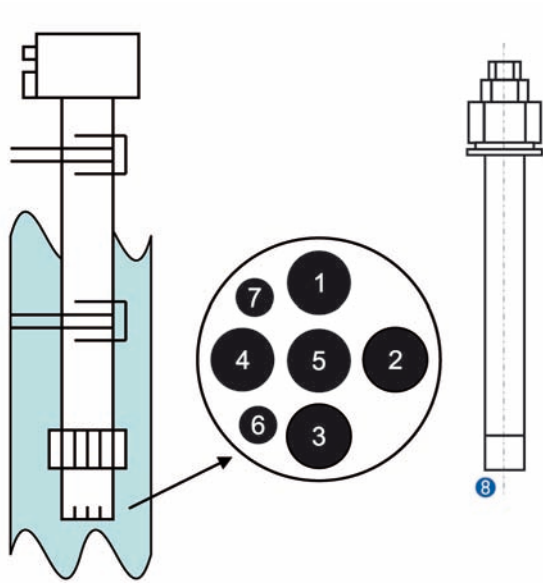
Single measurement system for NH_4 and NO_3 incl. immersion holder and automatic air cleaning system.

1. Converter
2. Sensor cable with connector
3. Pressurized air supply
4. Immersion holder
5. NH_4 electrode, NO_3 electrode, reference electrode
6. Air blast during cleaning cycle (programmable)
7. Wall mount bracket
8. Mounting post
9. Weather protection cover



Multiple measurement system for NH_4 and NO_3 using digital communication to one central converter. One pressurized air supply for automatic cleaning of all sensors.

1. Converter
2. Junction box for up to 4 immersion holders
3. Immersion holder
4. Immersion holder
5. Immersion holder
6. Immersion holder
7. Pressurized air supply



Electrode slots inside the immersion holder. If sensitivity to other ions is not acceptable (see technical data) an online compensation is available for K^+ , Na^+ , Cl^- or NO_2^- by adding an electrode. For fluctuating pH values $>pH8$ the use of an additional pH electrode for online compensation is recommended

1. Slot for measurement electrodes NH_4^+
2. Slot for measurement electrodes NO_3^-
3. Slot for optional compensation electrodes pH, K^+ , Na^+ , Cl^- or NO_2^-
4. Slot for reference electrode
5. Spray head for automatic air blast cleaning
6. Temperature sensor
7. Grounding pin
8. Electrode for installation in immersion holder

Technical Data Sensor

Measuring system

Measuring range	0.1...1200ppm NH ₄
	0.3...30000ppm NO ₃
Measuring principle	Ion selective electrodes for NH ₄ , NO ₃
Compensation	Fixed value or online compensation of pH, K ⁺ , Na ⁺ , Cl ⁻ , NO ₂
Reference electrode	KCL double reference system
Automatic cleaning	Valve included in sensor holder
	Air hose connection 1/4"
	Max. air pressure 3.5 bar / 50.8 psi
	Air volume for 10 sec: max 50 litre

Accuracy

Measuring accuracy	±5% full scale
Sensitivity NH ₄ to Potassium K ⁺ ①	1:25
Sensitivity NH ₄ to Sodium Na ⁺ ①	1:1000
Sensitivity NO ₃ to Chloride Cl ⁻ ①	1:200
Sensitivity NO ₃ to Nitrite NO ₂ ①	1:100
Sensitivity to Iodide I ⁻	1:1

Operating conditions

Process temperature	0...+60°C / +32...+140°F
Process pressure	Max. 0.5 bar / 7.3 psi
Life time expectation	ISE electrodes 4...6 month (typical)
	Reference electrode 6...12 month (typical)
pH range	2...12pH for NO ₃ 2...8pH for NH ₄ 8...12pH for NH ₄ with pH compensation

Installation conditions

Mounting	Wall mount bracket, hand rail
Cable	10 m / 32.8 ft fixed cable
PE	Sensor holder
Sensor NH ₄ , NO ₃ , NO ₂ , K ⁺ , Na ⁺	POM tube
Reference electrode	Glass tube

① if sensitivity is not acceptable concentration can be measured by separate electrode and compensated

Technical Data Converter

Functions

Display units	ppm, °C
Languages	English, German
Display	Graphic display
Operation	Key pad

Design

Installation	Wall mount housing
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Accuracy

Output accuracy	±5% full scale
Display accuracy	See sensor

Installation conditions

Ambient temperature	0...+50°C / +32...+122°F
Ingress protection	IP65, Nema 4

Materials

Housing	PS
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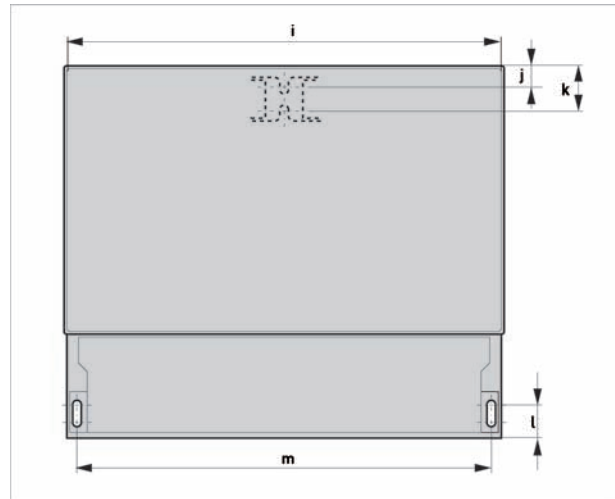
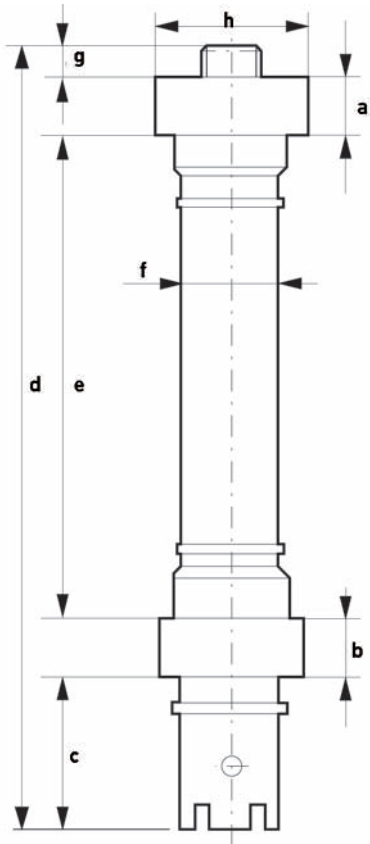
Power

Power supply	100...240 VAC
Power consumption	Max. 15 VA

In-/Outputs

Sensor inputs	2 via connectors, max. 4 via external junction box (option), max. length 50m
Signal output	4x 0/4...20 mA, 500 Ohm max. load
Relay output	5 relais, 250 V / 6 A, free programmable
Digital communication	RS232

Dimensions & Weight



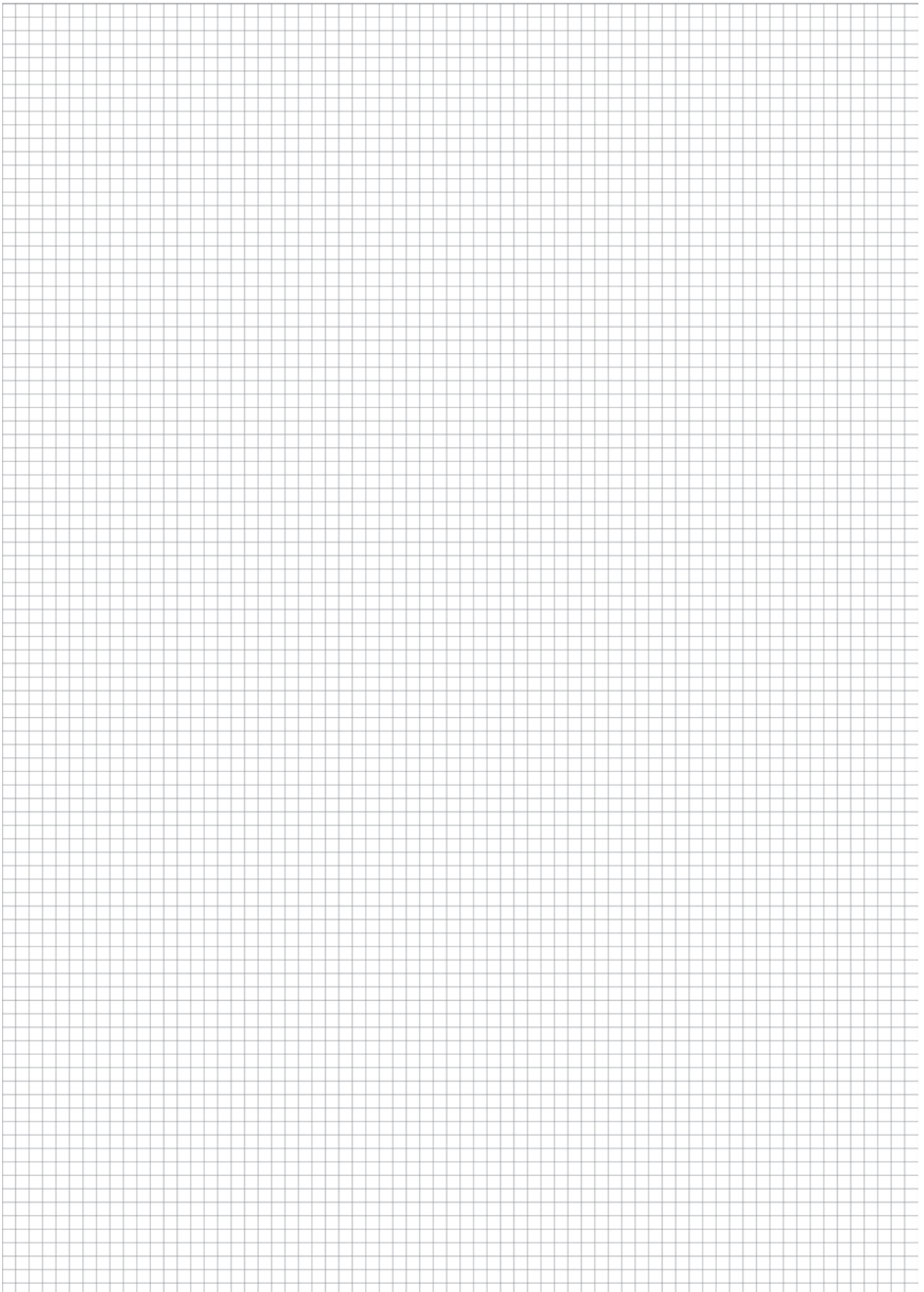
	Dimensions [mm]	Dimensions [inch]
a	45	1.77
b	45	1.77
c	105	4.13
d	565	22.24
e	350	13.78
f	75	2.95
g	20	0.79
h	100	3.93
i	250	9.84
j	15	0.59
k	27	1.06
l	19.5	0.77
m	242	9.53
	Weight [kg]	Weight [lbs]
Sensor	2.7	5.95
Converter	1.0	2.21

Order structure

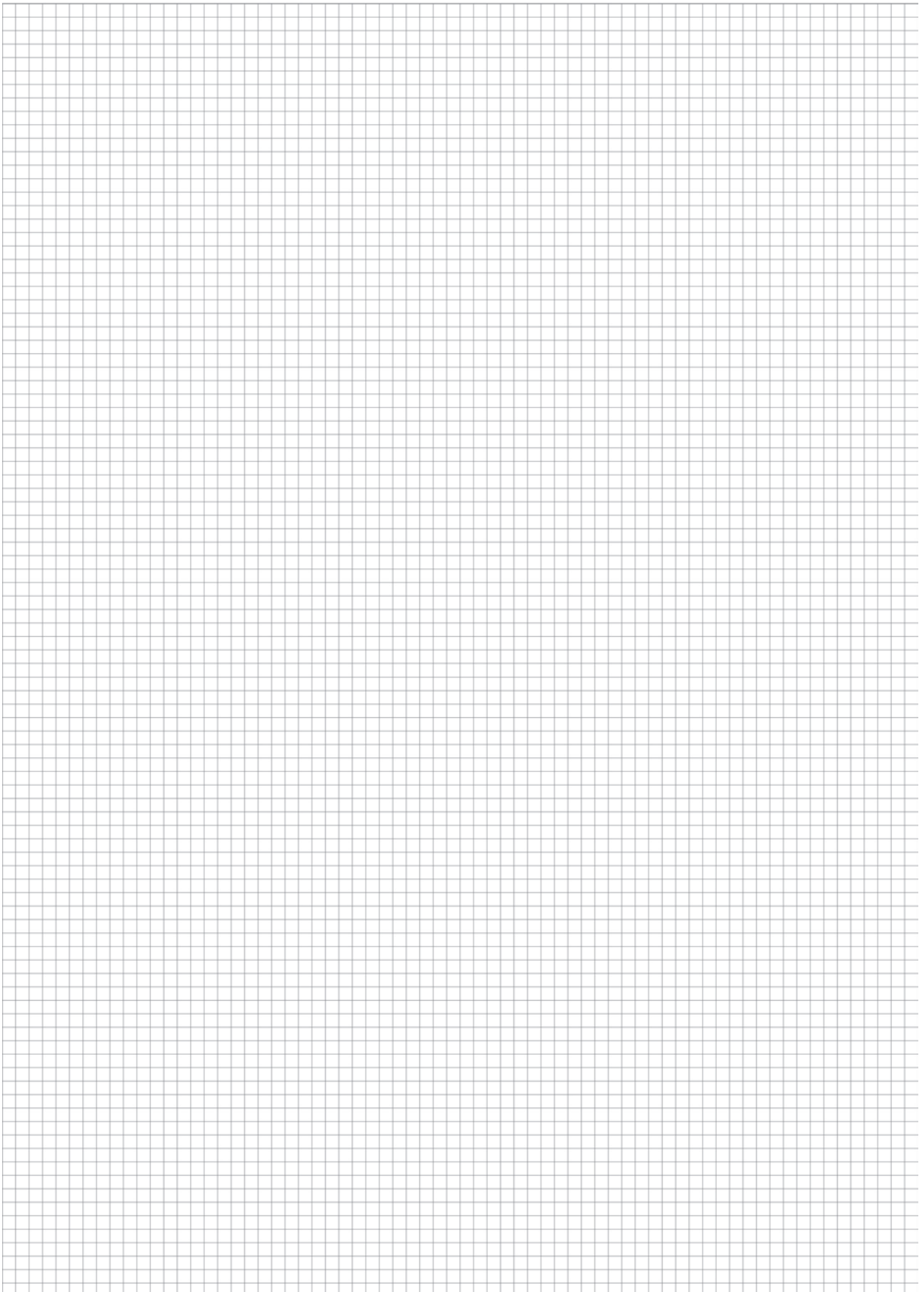
VGA C	4	Type/Housing converter
	1	OPTISENS PAM 2080
		Measuring range
		A 0 ... 1200 mg/l (ppm) NH ₄
		B 0 ... 30.000 mg/l (ppm) NO ₃
		C 0 ... 1200 mg/l NH ₄ , 0 ... 30.000 mg/l NO ₃
		Features
		A standard
		B potassium compensation (NH ₄)
		C chloride compensation (NO ₃)
		D pH compensation for >pH 8
		E pH and potassium compensation (NH ₄)
		Process conditions
		1 0 ... 40 °C (32...104 °F), 0.5 bar (7 psi)
		Signal outputs
		5 0/4 x 4-20 mA
		Relais
		2 5 x freely programmable
		Language
		1 english and german
		Power supply
		1 100 ... 240 VAC
		Options
		1 1 measuring holder incl. replacement membrane kit for 2 maintenance intervals
		2 2 measuring holder incl. replacement membrane kit for 2 maintenance intervals
		3 3 measuring holder incl. replacement membrane kit for 2 maintenance intervals
		4 4 measuring holder incl. replacement membrane kit for 2 maintenance intervals
		Documentation
		0 none
		1 english
		2 german
VGA C	4	Order code

Accessories

Order number	Designation
VGAB411221110000	Replacement pH electrode
VGA Z M 04000	Replacement electrode NH ₄
VGA Z M 04010	Replacement electrode NO ₃
VGA Z M 04020	Replacement electrode NO ₂
VGA Z M 04030	Replacement electrode Na ⁺
VGA Z M 04040	Replacement electrode K ⁺
VGA Z M 04050	Replacement electrode Cl ⁻
VGA Z M 04060	Replacement reference electrode
VGA Z M 04070	Service-Kit NH ₄ Electrode for 2 maintenance intervals
VGA Z M 04080	Service-Kit NO ₃ Electrode for 2 maintenance intervals







KROHNE measuring technology - Product overview

- Electromagnetic flowmeters
- Variable area flowmeters
- Mass flowmeters
- Ultrasonic flowmeters
- Vortex flowmeters
- Flow controllers
- Level measuring instruments
- Temperature measuring instruments
- Pressure measuring instruments
- Analysis
- Oil and gas industry

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