



View: Side Connector from top



Features

The Easy Board electronic transmitter offers the customer a quick means to use EC-Sense sensors. The sensors providing a stable voltage, digital result, onboard temperature measurement and self test capability.

15 24

EasyBoard

Technical Specification

Part Number	Input Signal Range	Output Signal	Describe
03-EB-Pos-01-01	5μΑ	0.02-4.8V	For ES1, ES4, ,EC4 Positive signal
03-EB-Pos-02-01	25µA	0.02-4.8V	sensor on the board.
03-EB-Pos-03-01	100µA	0.02-4.8V	sensor.
03-EB-Neg-01-01	5μΑ	0.02-4.8V	For ES1, ES4, ,EC4 Negative signal
03-EB-Neg-02-01	25µA	0.02-4.8V	sensor on the board.
03-EB-Neg-03-01	100µA	0.02-4.8V	sensor.
03-EB-O2-03-01	100µA	0.02-4.8V	For ES1-O2, ES4-O2 Oxygen

Performance

Sensor Type	Compatible with ES1, ES4 and EC4
Detectable Gases	See product range datasheet
Measuring Principle	Electrochemical with electronic amplification
Contacts	8 pins solderable with care
Standard Range	See sensor datasheet
Output Offset	0.002V dc
Signal Out	0.002 - 4.8 V dc
Adjustment	3V dc = sensor measurement range (e.g. for CO, 3V=500 ppm)
Digital Output	Optional
Temperature Measurement	- 40° C to 125° C - 40° C = 100 mV 125° C = 1750 mV
Input Voltage	+5V dc (see note)
Operating Temperature Range	-20 °C to 50 °C
Storage Conditions	0 °C to 20 °C
Operating Pressure Range	800 to 1200 hPa
Humidity Range	15-95% RH non-condensing
Weight	

The Easy Board can be used with a supply voltage of 2.4 - 5V dc. If a supply voltage of <5V dc is used, the output voltage will reduce correspondingly. Please advise EC-Sense if you like to use more than 5V dc supply voltage.

DISCLAIMER: Sensor performance is temperature dependent. Performance data stated is based on test conditions with new sensors at 23°C, 50%rH and 1 atm, flow rate>150qcm/min using EC-Sense recommended circuitry. Cross sensitivity gases are not target gases. Relations and performance can change, also with ageing of the sensor. In the interest of continued product improvement, EC-Sense reserves the right to change design features and specifications without prior notification. We do not accept any legal responsibility for customer applications of our sensors. EC-Sense accepts no liability for any consequential losses, injury or damage resulting from the use of this document, the information contained within or from any omissions or errors herein. This document does not constitute an offer for sale and the data contained is for guidance only and may not be taken as warranty. Any use of the given data must be assessed and determined by the user thereof to be in accordance with federal, state and local laws and regulations. All specifications outlined are subject to change without notice.

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Electrochemical 3 Eletrode Sensor EC4-NH₃-100 - Ammonia



Part Number: 01-EC4-NH₃-100-01

Features

- Zero bias
- High sensitivity
- High selectivity
- Excellent sensitivity at low temperatures
- Stable zero point
- Water based electrolyte
- Double sealed housing for advanced leakage protection

Typical applications

- Leakage detection
- TLV-monitoring
- General industry
- Semiconductor industry
- Livestock and poultry industry
- Cooling systems
- Emissions
- Indoor air quality
- Industrial safety
- Environmental monitoring
- Food and Refrigeration industry

Technical Specification

Performance

Sensitivity	110±25 nA /ppm
Zero current	± 100 nA
Response time	
-T ₅₀ -T ₉₀	< 20 s < 50 s
Range	100 ppm
Repeatability	2%
Lower Detectable Limit (LDL)	≤1ppm
Resolution (16Bit ADC)	0.1 ppm
Maximum overload	200 ppm
Linear range	100 ppm

Environment

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Temperature Range	-30 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric
Bias voltage	0 mV
Recommended load resistor	10 to 220Ω
Warm up time	< 60 s
Lifetime	
Long Term Sensitivity Drift	< 1 %/month
Zero Drift in clean air	< 10 ppm
Storage conditions	0-20 °C
Storage life	6 month
Expected Life Time	24 month
Warranty	12 month
Housing	
Housing material	ABS
Weight	< 6 g







All dimensions in mm. All tolerances are 0.10 mm unless otherwise stated





Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Carbon Dioxide	CO ₂	5000	0
Carbon Monoxide	СО	100	0
Chlorine	Cl ₂	1.0	0
Hydrogen	H ₂	100	0
Hydrogen Sulphide	H ₂ S	50	0
Isopropanol	C ₃ H ₇ OH	1000	0
Nitric Oxide	NO	25	n.e.

DISCLAIMER:Sensor performance is temperature dependent. Performance data stated is based on test conditions with new sensors at 23°C, 50%rH and 1 atm, flow rate>150qcm/min using EC-Sense recommended circuitry. Cross sensitivity gases are not target gases. Relations and performance can change, also with ageing of the sensor. In the interest of continued product improvement, EC-Sense reserves the right to change design features and specifications without prior notification. We do not accept any legal responsibility for customer applications of our sensors. EC-Sense accepts no liability for any consequential losses, injury or damage resulting from the use of this document, the information contained within or from any omissions or errors herein. This document does not constitute an offer for sale and the data contained is for guidance only and may not be taken as warranty. Any use of the given data must be assessed and determined by the user thereof to be in accordance with federal, state and local laws and regulations. All specifications outlined are subject to change without notice.

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Electrochemical 3 Electrode Sensor EC4-NH₃-500 - Ammonia



Part Number: 01-EC4-NH₃-500-01

Features

- Zero bias
- High sensitivity
- High selectivity
- Excellent sensitivity at low temperatures
- Stable zero point
- Water based electrolyte
- Double sealed housing for advanced leakage protection

Typical applications

- Leakage detection
- TLV-monitoring
- General industry
- Semiconductor industry
- Livestock and poultry industry
- Cooling systems
- Emissions
- Indoor air quality
- Industrial safety
- Environmental monitoring
- Leakage detection
- Food and Refrigeration industry

Technical Specification

Performance	
Sensitivity	35±15 nA /ppm
Zero current	± 100 nA
Response time	
-1 ₅₀ -T ₀₀	< 20 s < 50 s
Range	100 ppm
Repeatability	<2%
Lower Detectable Limit (LDL)	≤1ppm
Resolution (16Bit ADC)	0.1 ppm
Maximum overload	1000 ppm
Linear range	500 ppm
Environment	
Temperature Range	-30 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric
Bias voltage	0 mV
Recommended load resistor	10 to 220 Ω
Warm up time	< 60 s
Lifetime	
Long Term Sensitivity Drift	< 1 %/month
Zero Drift in clean air	< 10 ppm
Storage conditions	0-20 °C
Storage life	6 month
Expected Life Time	> 24 month
Warranty	12 month
Housing	
Housing material	ABS
Weight	< 6 g







All dimensions in mm. All tolerances are 0.10 mm unless otherwise stated





Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Carbon Dioxide	CO ₂	5000	0
Carbon Monoxide	СО	100	0
Chlorine	Cl ₂	1.0	0
Hydrogen	H ₂	100	0
Hydrogen Sulphide	H ₂ S	50	0
Isopropanol	C ₃ H ₇ OH	1000	0
Nitric Oxide	NO	25	n.e.

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Solid Polymer Sensor ES1-AG1-10 - All Gas



Part Number: 01-ES1-AG1-10-01

Features

- High sensitivity
- Low cost alternative to PID
- No electrolyte leakage
- Low cost at large volumes
- Individually calibrated including test report
- Detect to most VOC Gases
- Strong signal to noise
- Smallest EC Sensor in the world
- Fast Response time

Typical applications

- Consumer Market
- General Gas Detection
- VOC Gas Detection
- Low Power Nose
- Mobile Phone Nose
- Indoor Air Quality
- Outdoor Air Quality
- Breath Alcohol Detector

Technical Specification

Performance

Sensitivity	55±15 nA /ppm
Zero current	± 100 nA
Response time	
-1 ₅₀ -T ₉₀	< 10 s < 30 s
Range	1000 ppm
Repeatability	1%
Lower Detectable Limit (LDL)	≤ 2 ppm
Resolution (16Bit ADC)	0.1 ppm
Maximum overload	2000 ppm
Linear range	2000 ppm
Environment	
Temperature Range	-20 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric, 3-electrode
Bias voltage	0 mV
Recommended load resistor	100 Ω
Warm up time	< 90 / 60 s
Lifetime	
Long Term Sensitivity Drift	<1%/month
Zero Drift in clean air	< 2 ppm
Storage conditions	0-20 °C
Storage life	6 month
Expected Life Time	> 3 years
Warranty	24 month
Housing	
Housing material	ABS
Weight	< 0.7 g





All dimensions in mm





Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0.1
Carbon Dioxide	CO ₂	1000	0
Carbon Monoxide	СО	100	100
Chlorine	Cl ₂	1.0	-6
Dichlormethane	CH_2CI_2	30	0
Ethanol	$C_2H_5CI_2$	104	100
Ethylene oxide	C_2H_5OH	14	7
Ethyne	C_2H_2	80	250
Hydrogen	H ₂	100	20
Hydrogen Sulphide	H ₂ S	10	400
Hydrogen Cyanide	HCN	10	9
Isopropanol	C ₃ H ₇ OH	< 4000	>750
Methan	CH ₄	30000	0
Methanal	НСНО		ok
Methanol	CH ₃ OH		ok
Methylpropene	C_4H_8	15	18
Nitric Oxide	NO	25	n.e.
Nitrogen Dioxide	NO ₂	10	-5
Ozone	O ₃	0.5	0
Sulphur Dioxide	SO ₂		ok
Toluene	C ₇ H ₈		ok with bias
Xylene	C ₈ H ₁₀		ok
Gasoline			ok

Sensor reading in ppm after calibration to CO. Cross sensitivities indicated with ok showed a signal response under a bump test.

DISCLAIMER:Sensor performance is temperature dependent. Performance data stated is based on test conditions with new sensors at 23°C, 50%rH and 1 atm, flow rate>150qcm/min using EC-Sense recommended circuitry. Cross sensitivity gases are not target gases. Relations and performance can change, also with ageing of the sensor. In the interest of continued product improvement, EC-Sense reserves the right to change design features and specifications without prior notification. We do not accept any legal responsibility for customer applications of our sensors. EC-Sense accepts no liability for any consequential losses, injury or damage resulting from the use of this document, the information contained within or from any omissions or errors herein. This document does not constitute an offer for sale and the data contained is for guidance only and may not be taken as warranty. Any use of the given data must be assessed and determined by the user thereof to be in accordance with federal, state and local laws and regulations. All specifications outlined are subject to change without notice.

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Easy Gas Sensor ES1-AG1-200 - All Gas



Part Number: 01-ES1-AG1-200-01

Features

- High sensitivity
- Low cost alternative to PID
- No electrolyte leakage
- Low cost at large volumes
- Individually calibrated including test report
- Detect to most VOC Gases
- Strong signal to noise
- Smallest EC Sensor in the world
- Fast Response time

Typical applications

- Consumer Market
- General Gas Detection
- VOC Gas Detection
- Low Power Nose
- Mobile Phone Nose
- Indoor Air Quality
- Outdoor Air Quality
- Breath Alcohol Detector

Technical Specification

Performance

Feriorinance	
Sensitivity	55±15 nA /ppm
Zero current	± 100 nA
Response time	
- I ₅₀ - T _{on}	< 10 s < 30 s
Range	200 ppm
Repeatability	1%
Lower Detectable Limit (LDL)	≤ 2 ppm
Resolution (16Bit ADC)	0.1 ppm
Maximum overload	1000 ppm
Linear range	1000 ppm
Environment	
Temperature Range	-20 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric, 3-electrode
Bias voltage	0 mV
Recommended load resistor	100 Ω
Warm up time	< 60 s
Lifetime	
Long Term Sensitivity Drift	< 1 %/month
Zero Drift in clean air	< 2 ppm
Storage conditions	0-20 °C
Storage life	6 month
Expected Life Time	> 3 years
Warranty	24 month
Housing	
Housing material	PPO
Weight	< 0.7 g
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All dimensions in mm





Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0.1
Carbon Dioxide	CO ₂	1000	0
Carbon Monoxide	СО	100	100
Chlorine	Cl ₂	1.0	-6
Dichlormethane	CH_2CI_2	30	0
Ethanol	$C_2H_5CI_2$	104	100
Ethylene oxide	C_2H_5OH	14	7
Ethyne	C_2H_2	80	250
Hydrogen	H ₂	100	20
Hydrogen Sulphide	H ₂ S	10	400
Hydrogen Cyanide	HCN	10	9
Isopropanol	C ₃ H ₇ OH	< 4000	>750
Methan	CH ₄	30000	0
Methanal	НСНО		ok
Methanol	CH ₃ OH		ok
Methylpropene	C_4H_8	15	18
Nitric Oxide	NO	25	n.e.
Nitrogen Dioxide	NO ₂	10	-5
Ozone	O ₃	0.5	0
Sulphur Dioxide	SO ₂		ok
Toluene	C ₇ H ₈		ok with bias
Xylene	C ₈ H ₁₀		ok
Gasoline			ok

Sensor reading in ppm after calibration to CO. Cross sensitivities indicated with ok showed a signal response under a bump test.

DISCLAIMER:Sensor performance is temperature dependent. Performance data stated is based on test conditions with new sensors at 23°C, 50%rH and 1 atm, flow rate>150qcm/min using EC-Sense recommended circuitry. Cross sensitivity gases are not target gases. Relations and performance can change, also with ageing of the sensor. In the interest of continued product improvement, EC-Sense reserves the right to change design features and specifications without prior notification. We do not accept any legal responsibility for customer applications of our sensors. EC-Sense accepts no liability for any consequential losses, injury or damage resulting from the use of this document, the information contained within or from any omissions or errors herein. This document does not constitute an offer for sale and the data contained is for guidance only and may not be taken as warranty. Any use of the given data must be assessed and determined by the user thereof to be in accordance with federal, state and local laws and regulations. All specifications outlined are subject to change without notice.

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Easy Gas Sensor ES1-AG1-200 - All Gas



Part Number: 01-ES1-AG1-200-01

Features

- High sensitivity
- Low cost alternative to PID
- No electrolyte leakage
- Low cost at large volumes
- Individually calibrated including test report
- Detect to most VOC Gases
- Strong signal to noise
- Smallest EC Sensor in the world
- Fast Response time

Typical applications

- Consumer Market
- General Gas Detection
- VOC Gas Detection
- Low Power Nose
- Mobile Phone Nose
- Indoor Air Quality
- Outdoor Air Quality
- Breath Alcohol Detector

Technical Specification

Performance

enonnance	
Sensitivity	55±15 nA /ppm
Zero current	± 100 nA
Response time	
- I ₅₀ - T _{on}	< 10 s < 30 s
Range	200 ppm
Repeatability	1%
Lower Detectable Limit (LDL)	≤ 2 ppm
Resolution (16Bit ADC)	0.1 ppm
Maximum overload	1000 ppm
Linear range	1000 ppm
Environment	
Temperature Range	-20 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric, 3-electrode
Bias voltage	0 mV
Recommended load resistor	100 Ω
Warm up time	< 60 s
Lifetime	
Long Term Sensitivity Drift	< 1 %/month
Zero Drift in clean air	< 2 ppm
Storage conditions	0-20 °C
Storage life	6 month
Expected Life Time	> 3 years
Warranty	24 month
Housing	
Housing material	PPO
Weight	< 0.7 g
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All dimensions in mm





Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0.1
Carbon Dioxide	CO ₂	1000	0
Carbon Monoxide	СО	100	100
Chlorine	Cl ₂	1.0	-6
Dichlormethane	CH_2CI_2	30	0
Ethanol	$C_2H_5CI_2$	104	100
Ethylene oxide	C ₂ H ₅ OH	14	7
Ethyne	C ₂ H ₂	80	250
Hydrogen	H ₂	100	20
Hydrogen Sulphide	H ₂ S	10	400
Hydrogen Cyanide	HCN	10	9
Isopropanol	C ₃ H ₇ OH	< 4000	>750
Methan	CH ₄	30000	0
Methanal	НСНО		ok
Methanol	CH ₃ OH		ok
Methylpropene	C ₄ H ₈	15	18
Nitric Oxide	NO	25	n.e.
Nitrogen Dioxide	NO ₂	10	-5
Ozone	O ₃	0.5	0
Sulphur Dioxide	SO ₂		ok
Toluene	C ₇ H ₈		ok with bias
Xylene	C ₈ H ₁₀		ok
Gasoline			ok

Sensor reading in ppm after calibration to CO. Cross sensitivities indicated with ok showed a signal response under a bump test.

DISCLAIMER:Sensor performance is temperature dependent. Performance data stated is based on test conditions with new sensors at 23°C, 50%rH and 1 atm, flow rate>150qcm/min using EC-Sense recommended circuitry. Cross sensitivity gases are not target gases. Relations and performance can change, also with ageing of the sensor. In the interest of continued product improvement, EC-Sense reserves the right to change design features and specifications without prior notification. We do not accept any legal responsibility for customer applications of our sensors. EC-Sense accepts no liability for any consequential losses, injury or damage resulting from the use of this document, the information contained within or from any omissions or errors herein. This document does not constitute an offer for sale and the data contained is for guidance only and may not be taken as warranty. Any use of the given data must be assessed and determined by the user thereof to be in accordance with federal, state and local laws and regulations. All specifications outlined are subject to change without notice.

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Easy Gas Sensor ES1-AG1-1000 - All Gas



Part Number: 01-ES1-AG1-1000-01

Features

- High sensitivity
- Low cost alternative to PID
- No electrolyte leakage
- Low cost at large volumes
- Individually calibrated including test report
- Detect to most VOC Gases
- Strong signal to noise
- Smallest EC Sensor in the world
- Fast Response time

Typical applications

- Consumer Market
- General Gas Detection
- VOC Gas Detection
- Low Power Nose
- Mobile Phone Nose
- Indoor Air Quality
- Outdoor Air Quality
- Breath Alcohol Detector

Technical Specification

Performance

enormance	
Sensitivity	55±15 nA /ppm
Zero current	± 100 nA
Response time	
-1 ₅₀ -T _{an}	< 10 s < 30 s
Range	1000 ppm
Repeatability	1%
Lower Detectable Limit (LDL)	≤ 2 ppm
Resolution (16Bit ADC)	0.1 ppm
Maximum overload	2000 ppm
Linear range	2000 ppm
Environment	
Temperature Range	-20 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric, 3-electrode
Bias voltage	0 mV
Recommended load resistor	100 Ω
Warm up time	< 60 s
Lifetime	
Long Term Sensitivity Drift	<1%/month
Zero Drift in clean air	< 2 ppm
Storage conditions	0-20 °C
Storage life	6 month
Expected Life Time	> 3 years
Warranty	24 month
Housing	
Housing material	PPO
Weight	< 0.7 g
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All dimensions in mm





Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0.1
Carbon Dioxide	CO ₂	1000	0
Carbon Monoxide	СО	100	100
Chlorine	Cl ₂	1.0	-6
Dichlormethane	CH_2CI_2	30	0
Ethanol	$C_2H_5CI_2$	104	100
Ethylene oxide	C ₂ H ₅ OH	14	7
Ethyne	C ₂ H ₂	80	250
Hydrogen	H ₂	100	20
Hydrogen Sulphide	H ₂ S	10	400
Hydrogen Cyanide	HCN	10	9
Isopropanol	C ₃ H ₇ OH	< 4000	>750
Methan	CH ₄	30000	0
Methanal	НСНО		ok
Methanol	CH ₃ OH		ok
Methylpropene	C ₄ H ₈	15	18
Nitric Oxide	NO	25	n.e.
Nitrogen Dioxide	NO ₂	10	-5
Ozone	O ₃	0.5	0
Sulphur Dioxide	SO ₂		ok
Toluene	C ₇ H ₈		ok with bias
Xylene	C ₈ H ₁₀		ok
Gasoline			ok

Sensor reading in ppm after calibration to CO. Cross sensitivities indicated with ok showed a signal response under a bump test.

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Easy Gas Sensor ES1-AG1-2000 - All Gas



Part Number: ES1-AG1-2000-01

Features

- High sensitivity
- Low cost alternative to PID
- No electrolyte leakage
- Low cost at large volumes
- Individually calibrated including test report
- Detect to most VOC Gases
- Strong signal to noise
- Smallest EC Sensor in the world
- Fast Response time

Typical applications

- Consumer Market
- General Gas Detection
- VOC Gas Detection
- Low Power Nose
- Mobile Phone Nose
- Indoor Air Quality
- Outdoor Air Quality
- Breath Alcohol Detector

Technical Specification

Performance

Sensitivity	25±15 nA /ppm
Zero current	± 100 nA
Response time	
-1 ₅₀ -T _{on}	< 10 s < 30 s
Range	2000 ppm
Repeatability	1%
Lower Detectable Limit (LDL)	≤ 4ppm
Resolution (16Bit ADC)	0.1 ppm
Maximum overload	5000 ppm
Linear range	5000 ppm
Environment	
Temperature Range	-20 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric, 3-electrode
Bias voltage	0 mV
Recommended load resistor	100Ω
Warm up time	< 60 s
Lifetime	
Long Term Sensitivity Drift	<1%/month
Zero Drift in clean air	< 2 ppm
Storage conditions	0-20 °C
Storage life	6 month
Expected Life Time	> 3 years
Warranty	24 month
Housing	
Housing material	PPO
Weight	< 0.7 g
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All dimensions in mm



Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0.1
Carbon Dioxide	CO ₂	1000	0
Carbon Monoxide	СО	100	100
Chlorine	Cl ₂	1.0	-6
Dichlormethane	CH_2CI_2	30	0
Ethanol	$C_2H_5CI_2$	104	100
Ethylene oxide	C ₂ H ₅ OH	14	7
Ethyne	C ₂ H ₂	80	250
Hydrogen	H ₂	100	20
Hydrogen Sulphide	H ₂ S	10	400
Hydrogen Cyanide	HCN	10	9
Isopropanol	C ₃ H ₇ OH	< 4000	>750
Methan	CH ₄	30000	0
Methanal	НСНО		ok
Methanol	CH ₃ OH		ok
Methylpropene	C ₄ H ₈	15	18
Nitric Oxide	NO	25	n.e.
Nitrogen Dioxide	NO ₂	10	-5
Ozone	O ₃	0.5	0
Sulphur Dioxide	SO ₂		ok
Toluene	C ₇ H ₈		ok with bias
Xylene	C ₈ H ₁₀		ok
Gasoline			ok

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Easy Gas Sensor ES1-CO-100 - Carbon monoxide



Part Number: 01-ES1-CO-100-01

Features

- Extreme linear response up to high concentration
- Low noise
- No electrolyte leakage
- Low cost at large volumes
- Fast response
- Individually calibrated including test report
- Strong signal to noise
- Smallest EC Sensor in the world

Typical applications

- TLV-monitoring, leakage detection
- Oil & Petrochemical Industry
- Steel Industry
- Parking garages

Technical Specification

Performance

enormance	
Sensitivity	25 ±10 n A / ppm
Zero current	± 100 nA
Response time -T ₅₀ -T ₉₀	<10 s < 30 s
Range	100 ppm
Repeatability	<1 %
Lower Detectable Limit (LDL)	≤2 ppm
Resolution (16Bit ADC)	0.1 ppm
Maximum overload	2000 ppm
Linear range	2000 ppm
Environment	
Temperature Range	-40 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric, 3-electrode
Bias voltage	0 mV
Recommended load resistor	100 Ω
Warm up time	< 60 s
Lifetime	
Long Term Sensitivity Drift	< 1% /month
Zero Drift in clean air	< 2 ppm
Storage conditions	0-20 °C
Storage life	6 month
Expected Life Time	> 5 years
Warranty	24 month
Housing	
Housing material	PPO
Weight	< 0.7 g





All dimensions in mm





Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0
Carbon Dioxide	CO ₂	1000	0
Chlorine	Cl ₂	1.0	0
Hydrocarbons (unsaturated)	-		
Hydrogen	H ₂	100	50
Hydrogen Sulphide	H ₂ S	50	0
Hydrogen Cyanide	HCN	50	0
Isopropanol	C ₃ H ₇ OH	1000	0
Nitric Oxide	NO	25	n.e.
Nitrogen Dioxide	NO ₂	10	0

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Easy Gas Sensor ES1-CO-1000 - Carbon Monoxide



Part Number: 01-ES1-CO-1000-01

Features

- Extreme linear response up to high concentration
- No electrolyte leakage
- Low cost at large volumes
- Fast response
- Individually calibrated including test report
- Strong signal to noise
- Smallest EC Sensor in the world

Typical applications

- TLV-monitoring, leakage detection
- Oil & Petrochemical Industry
- Steel Industry
- Parking garages

Technical Specification

Sensitivity	25 ±10 n A / ppm
Zero current	± 100 nA
Response time -T ₅₀ -T ₉₀ Range	<10 s < 30 s 1000 ppm
Repeatability	<1 %
Lower Detectable Limit (LDL)	≤2 ppm
Resolution (16Bit ADC)	0.1 ppm
Maximum overload	2000 ppm
Linear range	2000 ppm
Environment	
Temperature Range	-40 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric, 3-electrode
Bias voltage	0 mV
Recommended load resistor	100 Ω
Warm up time	< 60 s
Lifetime	
Long Term Sensitivity Drift	< 1% /month
Zero Drift in clean air	< 2 ppm
Storage conditions	0-20 °C
Storage life	6 month
Expected Life Time	> 5 years
Warranty	24 month
Housing	
Housing material	PPO
Weight	< 0.7 g





All dimensions in mm





Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0
Carbon Dioxide	CO ₂	1000	0
Chlorine	Cl ₂	1.0	0
Hydrocarbons (unsaturated)	-		
Hydrogen	H ₂	100	50
Hydrogen Sulphide	H ₂ S	50	0
Hydrogen Cyanide	HCN	50	0
Isopropanol	C ₃ H ₇ OH	1000	0
Nitric Oxide	NO	25	n.e.
Nitrogen Dioxide	NO ₂	10	0

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Easy Gas Sensor ES1-CO-10000 - Carbon Monoxide



Part Number: 01-ES1-CO-10000-01

Features

- Extreme linear response up to high concentration
- Low noise
- No electrolyte leakage
- Low cost at large volumes
- Fast response
- Individually calibrated including test report

Typical applications

- TLV-monitoring, leakage detection
- Oil & Petrochemical Industry
- Steel Industry
- Parking garages

Technical Specification

renormance	
Sensitivity	10nA ± 3nA
Zero current	± 100 nA
Response time	
-T ₅₀	<10s <30s
Range	10000 ppm
Repeatability	<1%
Lower Detectable Limit (LDL)	≤10 ppm
Resolution (16Bit ADC)	1ppm
Maximum overload	30000 ppm
Linear range	30000 ppm
Environment	
Temperature Range	-40°C to 50°C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric, 3-electrode
Bias voltage	0 mV
Recommended load resistor	100 Ω
Warm up time	< 60 s
Lifetime	
Long Term Sensitivity Drift	< 1 %/month
Zero Drift in clean air	< 2 ppm
Storage conditions	0-20 °C
Storage life	6 month
Expected Life Time	> 3 years
Warranty	24 month
Housing	
Housing material	PPO
Weight	< 0.7g





All dimensions in mm

Cross sensitivity

Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0
Carbon Dioxide	CO ₂	1000	0
Chlorine	Cl ₂	1.0	0
Hydrocarbons (unsaturated)	-		
Hydrogen	H ₂	100	80
Hydrogen Sulphide	H ₂ S	50	0
Hydrogen Cyanide	HCN	50	0
Isopropanol	C ₃ H ₇ OH	1000	0
Nitric Oxide	NO	25	n.e.
Nitrogen Dioxide	NO ₂	100	0

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Easy Gas Sensor ES1-H₂-1000 - Hydrogen



Part Number: 01-ES1-H₂-1000-01

Features

- Strong signal to noise
- Smallest EC Sensor in the world
- Fast response

Typical applications

- Ambient monitoring
- Very sensitive leak detection

Technical Specification

enomance	
Sensitivity	11±3 nA /ppm
Zero current	± 100 nA
Response time	
-T ₅₀ -T ₉₀	< 10 s < 30 s
Range	1000 ppm
Repeatability	1%
Lower Detectable Limit (LDL)	≤ 2 ppm
Resolution (16Bit ADC)	0.1 ppm
Maximum overload	2000 ppm
Linear range	2000 ppm
Environment	
Temperature Range	-40 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric, 3-electrode
Bias voltage	0 mV
Recommended load resistor	100 Ω
Warm up time	< 20 s
Lifetime	
Long Term Sensitivity Drift	<1%/month
Zero Drift in clean air	< 10 ppm
Storage conditions	0-20 °C
Storage life	6 month
Expected Life Time	> 5 years
Warranty	12 month
Housing	
Housing material	PPO
Weight	< 0.7 g





All dimensions in mm





Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0
Carbon Dioxide	CO ₂	1000	n.e.
Carbon Monoxide	СО	50	46
Chlorine	Cl ₂	10	0
Hydrocarbons (unsaturated)			n.a.
Hydrogen Cyanide	HCN	10	0
Isopropanol	C ₃ H ₇ OH	1000	n.a.
Nitric Oxide	NO	25	n.a.
Nitrogen Dioxide	NO ₂	10	0

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Easy Gas Sensor ES1-H₂-20000 - Hydrogen



Part Number: 01-ES1-H₂-20000-01

Features

- Strong signal to noise
- Smallest EC Sensor in the world
- Fast response

Typical applications

- Ambient monitoring
- Very sensitive leak detection

Technical Specification

Performance	
Sensitivity	3±2 nA /ppm
Zero current	± 5 nA
Response time -T ₅₀ -T ₉₀	< 10 s < 30 s
Range	20000 ppm
Repeatability	1%
Lower Detectable Limit (LDL)	≤ 100 ppm
Resolution (16Bit ADC)	10 ppm
Maximum overload	40000 ppm
Linear range	40000 ppm
Environment	
Temperature Range	-40 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric, 3-electrode
Bias voltage	0 mV
Recommended load resistor	100 Ω
Warm up time	< 20 s
Lifetime	
Long Term Sensitivity Drift	< 1 %/month
Zero Drift in clean air	< 10 ppm
Storage conditions	0-20 °C
Storage life	6 month
Expected Life Time	> 5 years
Warranty	12 month
Housing	
Housing material	PPO
Weight	< 0.7 g





All dimensions in mm





Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0
Carbon Dioxide	CO ₂	1000	n.e.
Carbon Monoxide	СО	50	46
Chlorine	Cl ₂	10	0
Hydrocarbons (unsaturated)			n.a.
Hydrogen Cyanide	HCN	10	0
Isopropanol	C ₃ H ₇ OH	1000	n.a.
Nitric Oxide	NO	25	n.a.
Nitrogen Dioxide	NO ₂	10	0

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Easy Gas Sensor ES1-H₂S-100 - Hydrogen Sulfide



Part Number: 01-ES1-H₂S-100-01

Features

- Extreme linear response up to high concentration
- Low noise
- Short warm up time
- No electrolyte leakage
- Low cost at large volumes
- Fast response
- Individually calibrated including test report

Typical applications

- Water treatment plants
- Biogas applications
- Portable & fixed point applications
- Leakage detection

Technical Specification

Sensitivity	90±20 nA /ppm
Zero current	± 20 nA
Response time	
-1 ₅₀ -T ₉₀	< 10 s < 30 s
Range	100 ppm
Repeatability	1%
Lower Detectable Limit (LDL)	≤1ppm
Resolution (16Bit ADC)	0.1 ppm
Maximum overload	200 ppm
Linear range	200 ppm
Environment	
Temperature Range	-40 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric, 3-electrode
Bias voltage	0 mV
Recommended load resistor	100Ω
Warm up time	< 20 s
Lifetime	
Long Term Sensitivity Drift	<1%/month
Zero Drift in clean air	< 2 ppm
Storage conditions	0-20°C
Storage life	6 month
Expected Life Time	> 3 years
Warranty	12 month
Housing	
Housing material	PPO
Weight	< 0.7 g





All dimensions in mm





Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0
Carbon Dioxide	CO ₂	1000	0
Carbon Monoxide	СО	50	3
Chlorine	Cl ₂	10	-1.5
Hydrocarbons (unsaturated)			n.e.
Hydrogen	H ₂	100	3
Hydrogen Cyanide	HCN	10	0
Isopropanol	C ₃ H ₇ OH	1000	n.e.
Nitric Oxide	NO	25	n.a.
Nitrogen Dioxide	NO ₂	10	-2.2

DISCLAIMER: Sensor performance is temperature dependent. Performance data stated is based on test conditions with new sensors at 23°C, 50%rH and 1 atm, flow rate>150gcm/min using EC-Sense recommended circuitry. Cross sensitivity gases are not target gases. Relations and performance can change, also with ageing of the sensor. In the interest of continued product improvement, EC-Sense reserves the right to change design features and specifications without prior notification. We do not accept any legal responsibility for customer applications of our sensors. EC-Sense accepts no liability for any consequential losses, injury or damage resulting from the

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Easy Gas Sensor ES1-H₂S-500 - Hydrogen Sulfide



Part Number: 01-ES1-H₂S-500-01

Features

- Extreme linear response up to high concentration
- Low noise
- Short warm up time
- No electrolyte leakage
- Low cost at large volumes
- Fast response
- Individually calibrated including test report

Typical applications

- Water treatment plants
- Biogas applications
- Portable & fixed point applications
- Leakage detection

Technical Specification

Sensitivity	90±20 nA /ppm
Zero current	± 20 nA
Response time	
-1 ₅₀ -T ₉₀	< 10 s < 30 s
Range	500 ppm
Repeatability	1%
Lower Detectable Limit (LDL)	≤ 2 ppm
Resolution (16Bit ADC)	0.1 ppm
Maximum overload	1000 ppm
Linear range	1000 ppm
Environment	
Temperature Range	-40 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric, 3-electrode
Bias voltage	0 mV
Recommended load resistor	100 Ω
Warm up time	< 20 s
Lifetime	
Long Term Sensitivity Drift	<1%/month
Zero Drift in clean air	< 2 ppm
Storage conditions	0-20 °C
Storage life	6 month
Expected Life Time	> 3 years
Warranty	12 month
Housing	
Housing material	PPO
Weight	< 0.7 g





All dimensions in mm





Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0
Carbon Dioxide	CO ₂	1000	0
Carbon Monoxide	СО	50	3
Chlorine	Cl ₂	10	-1.5
Hydrocarbons (unsaturated)			n.e.
Hydrogen	H ₂	100	3
Hydrogen Cyanide	HCN	10	0
Isopropanol	C ₃ H ₇ OH	1000	n.e.
Nitric Oxide	NO	25	n.a.
Nitrogen Dioxide	NO ₂	10	-2.2

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Easy Gas Sensor ES1-H₂S-5000 - Hydrogen Sulfide



Part Number: 01-ES1-H₂S-5000-01

Features

- Extreme linear response up to high concentration
- Low noise
- Short warm up time
- No electrolyte leakage
- Low cost at large volumes
- Fast response
- Individually calibrated including test report

Typical applications

- Water treatment plants
- Biogas applications
- Portable & fixed point applications
- Leakage detection

Technical Specification

enonnance	
Sensitivity	10±3 nA /ppm
Zero current	± 20 nA
Response time	
-1 ₅₀ -T ₉₀	< 10 s < 30 s
Range	5000 ppm
Repeatability	1%
Lower Detectable Limit (LDL)	≤ 5 ppm
Resolution (16Bit ADC)	1 ppm
Maximum overload	10000 ppm
Linear range	10000 ppm
Invironment	
Temperature Range	-40 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric, 3-electrode
Bias voltage	0 mV
Recommended load resistor	100 Ω
Warm up time	< 20 s
Lifetime	
Long Term Sensitivity Drift	<1%/month
Zero Drift in clean air	< 2 ppm
Storage conditions	0-20 °C
Storage life	6 month
Expected Life Time	> 3 years
Warranty	12 month
Housing	
Housing material	PPO
Weight	< 0.7 g





All dimensions in mm



Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0
Carbon Dioxide	CO ₂	1000	0
Carbon Monoxide	СО	50	3
Chlorine	Cl ₂	10	-1.5
Hydrocarbons (unsaturated)			n.e.
Hydrogen	H ₂	100	3
Hydrogen Cyanide	HCN	10	0
Isopropanol	C ₃ H ₇ OH	1000	n.e.
Nitric Oxide	NO	25	n.a.
Nitrogen Dioxide	NO ₂	10	-2.2

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Easy Gas Sensor ES1-NO₂-50 - Nitrogen Dioxide



Part Number: 01-ES1-NO₂-50-01

Features

- Extreme linear response up to high concentration
- Fast response
- Low cost alternative to PID
- Low noise
- No electrolyte leakage
- Low cost at large volumes
- Individually calibrated including test report

Typical applications

- TLV monitoring
- Parking garages

Technical Specification

Performance

Sensitivity	-20±10 nA /ppm
Zero current	± 2 nA
Response time	
-1 ₅₀ -T ₉₀	< 10 s < 30 s
Range	50 ppm
Repeatability	1%
Lower Detectable Limit (LDL)	≤ 1ppm
Resolution (16Bit ADC)	0.1 ppm
Maximum overload	500 ppm
Linear range	500 ppm
Environment	
Temperature Range	-40 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric, 3-electrode
Bias voltage	0 mV
Recommended load resistor	100 Ω
Warm up time	< 20 s
Lifetime	
Long Term Sensitivity Drift	<1%/month
Zero Drift in clean air	< 0.2 ppm
Storage conditions	0-20 °C
Storage life	6 month
Expected Life Time	> 3 years
Warranty	12 month
Housing	
Housing material	PPO
Weight	< 0.7 g





All dimensions in mm





Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0
Carbon Dioxide	CO ₂	1000	0
Carbon Monoxide	СО	50	0
Chlorine	Cl ₂	10	10
Hydrocarbons (unsaturated)	-		n.a.
Hydrogen	H ₂	100	0
Hydrogen Cyanide	HCN	10	0
Isopropanol	C ₃ H ₇ OH	1000	n.a.
Nitric Oxide	NO	25	n.a.
Nitrogen Dioxide	NO ₂	10	0

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Easy Gas Sensor ES1-NO₂-100 - Nitrogen Dioxide



Part Number: 01-ES1-NO₂-100-01

Features

- Extreme linear response up to high concentration
- Fast response
- Low cost alternative to PID
- Low noise
- No electrolyte leakage
- Low cost at large volumes
- Individually calibrated including test report

Typical applications

- TLV monitoring
- Parking garages

Technical Specification

Sensitivity	-20±10 nA /ppm
Zero current	±2nA
Response time	
-1 ₅₀ -T ₉₀	< 10 s < 30 s
Range	100 ppm
Repeatability	1%
Lower Detectable Limit (LDL)	≤1ppm
Resolution (16Bit ADC)	0.1 ppm
Maximum overload	500 ppm
Linear range	500 ppm
Environment	
Temperature Range	-40 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric, 3-electrode
Bias voltage	0 mV
Recommended load resistor	100 Ω
Warm up time	< 20 s
Lifetime	
Long Term Sensitivity Drift	< 1 %/month
Zero Drift in clean air	< 0.2 ppm
Storage conditions	0-20 °C
Storage life	6 month
Expected Life Time	> 3 years
Warranty	12 month
Housing	
Housing material	PPO
Weight	< 0.7 g





All dimensions in mm





Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0
Carbon Dioxide	CO ₂	1000	0
Carbon Monoxide	СО	50	0
Chlorine	Cl ₂	10	10
Hydrocarbons (unsaturated)	-		n.a.
Hydrogen	H ₂	100	0
Hydrogen Cyanide	HCN	10	0
Isopropanol	C ₃ H ₇ OH	1000	n.a.
Nitric Oxide	NO	25	n.a.
Nitrogen Dioxide	NO ₂	10	0

DISCLAIMER:Sensor performance is temperature dependent. Performance data stated is based on test conditions with new sensors at 23°C, 50%rH and 1 atm, flow rate>150qcm/min using EC-Sense recommended circuitry. Cross sensitivity gases are not target gases. Relations and performance can change, also with ageing of the sensor. In the interest of continued product improvement, EC-Sense reserves the right to change design features and specifications without prior notification. We do not accept any legal responsibility for customer applications of our sensors. EC-Sense accepts no liability for any consequential losses, injury or damage resulting from the use of this document, the information contained within or from any omissions or errors herein. This document does not constitute an offer for sale and the data contained is for guidance only and may not be taken as warranty. Any use of the given data must be assessed and determined by the user thereof to be in accordance with federal, state and local laws and regulations. All specifications outlined are subject to change without notice.

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Easy Gas Sensor ES1-NO₂-1000 - Nitrogen Dioxide



Part Number: 01-ES1-NO₂-1000-01

Features

- Extreme linear response up to high concentration
- Fast response
- Low cost alternative to PID
- Low noise
- No electrolyte leakage
- Low cost at large volumes
- Individually calibrated including test report

Typical applications

- TLV monitoring
- Parking garages

Technical Specification

Sensitivity	10±3 nA /ppm
Zero current	± 2 nA
Response time	
-1 ₅₀ -T ₉₀	< 10 s < 30 s
Range	1000 ppm
Repeatability	1%
Lower Detectable Limit (LDL)	≤ 2 ppm
Resolution (16Bit ADC)	0.1 ppm
Maximum overload	5000 ppm
Linear range	5000 ppm
Environment	
Temperature Range	-40 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric, 3-electrode
- Operating principle Bias voltage	amperometric, 3-electrode 0 mV
Operating principle Bias voltage Recommended load resistor	amperometric, 3-electrode 0 mV 100 Ω
Operating principle Bias voltage Recommended load resistor Warm up time	amperometric, 3-electrode 0 mV 100 Ω < 20 s
Coperating principle Bias voltage Recommended load resistor Warm up time Lifetime	amperometric, 3-electrode 0 mV 100 Ω < 20 s
Operating principle Bias voltage Recommended load resistor Warm up time Lifetime Long Term Sensitivity Drift	amperometric, 3-electrode 0 mV 100 Ω < 20 s < 1%/month
Operating principle Bias voltage Recommended load resistor Warm up time Lifetime Long Term Sensitivity Drift Zero Drift in clean air	amperometric, 3-electrode 0 mV 100 Ω < 20 s < 1%/month < 0.2 ppm
Coperating principle Bias voltage Recommended load resistor Warm up time Lifetime Long Term Sensitivity Drift Zero Drift in clean air Storage conditions	amperometric, 3-electrode 0 mV 100 Ω < 20 s < 1%/month < 0.2 ppm 0-20 °C
Operating principle Bias voltage Recommended load resistor Warm up time Lifetime Long Term Sensitivity Drift Zero Drift in clean air Storage conditions Storage life	amperometric, 3-electrode 0 mV 100 Ω < 20 s < 1 %/month < 0.2 ppm 0-20 °C 6 month
Operating principleBias voltageRecommended load resistorWarm up timeLifetimeLong Term Sensitivity DriftZero Drift in clean airStorage conditionsStorage lifeExpected Life Time	amperometric, 3-electrode 0 mV 100 Ω < 20 s < 1%/month < 0.2 ppm 0-20 °C 6 month > 3 years
Operating principleBias voltageRecommended load resistorWarm up timeLifetimeLong Term Sensitivity DriftZero Drift in clean airStorage conditionsStorage lifeExpected Life TimeWarranty	amperometric, 3-electrode 0 mV 100 Ω < 20 s < 20 s < 1%/month < 0.2 ppm 0-20 °C 6 month > 3 years 12 month
Operating principle Bias voltage Recommended load resistor Warm up time Lifetime Long Term Sensitivity Drift Zero Drift in clean air Storage conditions Storage life Expected Life Time Warranty Housing	amperometric, 3-electrode 0 mV 100 Ω < 20 s < 20 s < 1 %/month < 0.2 ppm 0-20 °C 6 month > 3 years 12 month
Operating principle Bias voltage Recommended load resistor Warm up time Lifetime Long Term Sensitivity Drift Zero Drift in clean air Storage conditions Storage life Expected Life Time Warranty Housing material	amperometric, 3-electrode 0 mV 100 Ω 20 s 20 s 1 %/month 2 0.2 ppm 0-20 °C 6 month 5 3 years 12 month PPO
Operating principleBias voltageRecommended load resistorWarm up timeLifetimeLong Term Sensitivity DriftZero Drift in clean airStorage conditionsStorage lifeExpected Life TimeWarrantyHousing materialWeight	amperometric, 3-electrode 0 mV 100 Ω < 20 s < 20 s < 1 %/month < 0.2 ppm 0-20 °C 6 month 5 3 years 12 month PPO < 0.7 g





All dimensions in mm

Cross sensitivity

Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0
Carbon Dioxide	CO ₂	1000	0
Carbon Monoxide	СО	50	0
Chlorine	Cl ₂	10	10
Hydrocarbons (unsaturated)	-		n.a.
Hydrogen	H ₂	100	0
Hydrogen Cyanide	HCN	10	0
Isopropanol	C ₃ H ₇ OH	1000	n.a.
Nitric Oxide	NO	25	n.a.
Nitrogen Dioxide	NO ₂	10	0

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Easy Gas Sensor ES1-0,-25% - Oxygen



Part Number: 01-ES1-O₂-25-01

Features

- Strong signal to noise
- Smallest EC Sensor in the world
- Capillary Sensor
- Response Time Typically 4s
- Low Power Consumption
- 400-600mV Bias Voltage
- Lead Free

Typical applications

- Industrial
- Medical
- Food Industry
- Combustion Control

Technical Specification

Performance

Sensitivity	0.2± 0.03 nA /ppm
Zero current	40-60 μΑ
Response time	
-T ₅₀ -T ₉₀	< 5s < 10s
Range	25 % O ₂
Lower Detectable Limit (LDL)	≤ 0.5 %
Resolution (16 Bit ADC)	0.01% O ₂
Maximum overload	30 % O ₂

Environment

Temperature Range	-20 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa

Operation

3 Electrode Electrochemical sensor Bias voltage	-400 to -600 mV
Warm up time	600s
Lifetime	
Lifetime	
Long Term Sensitivity Drift	<1%/month
Zero Drift in clean air	< 0.2 % O ₂
Expected Life Time	> 3 years
Storage life	6 month
Warranty	24 month
Storage conditions	0-20 °C

Housing

Housing material	PPO
Weight	< 0.7 g





All dimensions in mm





Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	20	0
Carbon Dioxide	CO ₂	5000	0
Carbon Monoxide	СО	50	0
Chlorine	Cl ₂	1.0	0
Hydrocarbons (unsaturated)		1 %	0
Hydrogen	H ₂	100	0
Hydrogen Cyanide	HCN	10	0
Isopropanol	C ₃ H ₇ OH	1000	0
Nitric Oxide	NO	25	0
Nitrogen Dioxide	NO ₂	10	0
Ozone	O ₃	0.5	0
Sulphur Dioxide	SO ₂	20	0

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Solid Polymer Sensor ES4-AG1-10 - All Gas



Part Number: 01-ES4-AG1-10-01

Features

- High sensitivity
- Low cost alternative to PID
- No electrolyte leakage
- Low cost at large volumes
- Individually calibrated including test report
- Detect to most VOC Gases
- Strong signal to noise
- Smallest EC Sensor in the world
- Fast Response time

Typical applications

- Consumer Market
- General Gas Detection
- VOC Gas Detection
- Low Power Nose
- Mobile Phone Nose
- Indoor Air Quality
- Outdoor Air Quality
- Breath Alcohol Detector

Technical Specification

Performance

enonnance	
Sensitivity	55±15 nA /ppm
Zero current	± 100 nA
Response time	
-I ₅₀ -T ₉₀	< 10 s < 30 s
Range	1000 ppm
Repeatability	1%
Lower Detectable Limit (LDL)	≤ 2 ppm
Resolution (16Bit ADC)	0.1 ppm
Maximum overload	2000 ppm
Linear range	2000 ppm
Environment	
Temperature Range	-20 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric, 3-electrode
Bias voltage	0 mV
Recommended load resistor	100Ω
Warm up time	< 90 / 60 s
Lifetime	
Long Term Sensitivity Drift	< 1 %/month
Zero Drift in clean air	< 2 ppm
Storage conditions	0-20 °C
Storage life	6 month
Expected Life Time	> 3 years
Warranty	24 month
Housing	
Housing material	ABS
Weight	< 6 g







All dimensions in mm. All tolerances are 0.10 mm unless otherwise stated





Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0.1
Carbon Dioxide	CO ₂	1000	0
Carbon Monoxide	СО	100	100
Chlorine	Cl ₂	1.0	-6
Dichlormethane	CH_2CI_2	30	0
Ethanol	$C_2H_5CI_2$	104	100
Ethylene oxide	C ₂ H ₅ OH	14	7
Ethyne	C ₂ H ₂	80	250
Hydrogen	H ₂	100	20
Hydrogen Sulphide	H ₂ S	10	400
Hydrogen Cyanide	HCN	10	9
Isopropanol	C ₃ H ₇ OH	< 4000	>750
Methan	CH ₄	30000	0
Methanal	НСНО		ok
Methanol	CH ₃ OH		ok
Methylpropene	C_4H_8	15	18
Nitric Oxide	NO	25	n.e.
Nitrogen Dioxide	NO ₂	10	-5
Ozone	O ₃	0.5	0
Sulphur Dioxide	SO ₂		ok
Toluene	C ₇ H ₈		ok with bias
Xylene	C ₈ H ₁₀		ok
Gasoline			ok

Sensor reading in ppm after calibration to CO. Cross sensitivities indicated with ok showed a signal response under a bump test.

DISCLAIMER:Sensor performance is temperature dependent. Performance data stated is based on test conditions with new sensors at 23°C, 50%rH and 1 atm, flow rate>150qcm/min using EC-Sense recommended circuitry. Cross sensitivity gases are not target gases. Relations and performance can change, also with ageing of the sensor. In the interest of continued product improvement, EC-Sense reserves the right to change design features and specifications without prior notification. We do not accept any legal responsibility for customer applications of our sensors. EC-Sense accepts no liability for any consequential losses, injury or damage resulting from the use of this document, the information contained within or from any omissions or errors herein. This document does not constitute an offer for sale and the data contained is for guidance only and may not be taken as warranty. Any use of the given data must be assessed and determined by the user thereof to be in accordance with federal, state and local laws and regulations. All specifications outlined are subject to change without notice.

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Easy Gas Sensor ES4-AG1-200 - All Gas

Technical Specification

Performance





Part Number: 01-ES4-AG1-200-01

Features

- High sensitivity
- Low cost alternative to PID
- No electrolyte leakage
- Low cost at large volumes
- Individually calibrated including test report
- Detect to most VOC Gases
- Strong signal to noise
- Smallest EC Sensor in the world
- Fast Response time

Typical applications

- Consumer Market
- General Gas Detection
- VOC Gas Detection
- Low Power Nose
- Mobile Phone Nose
- Indoor Air Quality
- Outdoor Air Quality
- Breath Alcohol Detector







All dimensions in mm. All tolerances are 0.10 mm unless otherwise stated





Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0.1
Carbon Dioxide	CO ₂	1000	0
Carbon Monoxide	СО	100	100
Chlorine	Cl ₂	1.0	-6
Dichlormethane	CH_2CI_2	30	0
Ethanol	$C_2H_5CI_2$	104	100
Ethylene oxide	C ₂ H ₅ OH	14	7
Ethyne	C ₂ H ₂	80	250
Hydrogen	H ₂	100	20
Hydrogen Sulphide	H ₂ S	10	400
Hydrogen Cyanide	HCN	10	9
Isopropanol	C ₃ H ₇ OH	< 4000	>750
Methan	CH ₄	30000	0
Methanal	НСНО		ok
Methanol	CH ₃ OH		ok
Methylpropene	C ₄ H ₈	15	18
Nitric Oxide	NO	25	n.e.
Nitrogen Dioxide	NO ₂	10	-5
Ozone	O ₃	0.5	0
Sulphur Dioxide	SO ₂		ok
Toluene	C ₇ H ₈		ok with bias
Xylene	C ₈ H ₁₀		ok
Gasoline			ok

Sensor reading in ppm after calibration to CO. Cross sensitivities indicated with ok showed a signal response under a bump test.

DISCLAIMER:Sensor performance is temperature dependent. Performance data stated is based on test conditions with new sensors at 23°C, 50%rH and 1 atm, flow rate>150qcm/min using EC-Sense recommended circuitry. Cross sensitivity gases are not target gases. Relations and performance can change, also with ageing of the sensor. In the interest of continued product improvement, EC-Sense reserves the right to change design features and specifications without prior notification. We do not accept any legal responsibility for customer applications of our sensors. EC-Sense accepts no liability for any consequential losses, injury or damage resulting from the use of this document, the information contained within or from any omissions or errors herein. This document does not constitute an offer for sale and the data contained is for guidance only and may not be taken as warranty. Any use of the given data must be assessed and determined by the user thereof to be in accordance with federal, state and local laws and regulations. All specifications outlined are subject to change without notice.

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Easy Gas Sensor ES4-AG1-1000 - All Gas

Technical Specification

Performance

Sensitivity	55±15 nA /ppm
Zero current	± 100 nA
Response time	
-1 ₅₀ -T _{an}	< 10 s < 30 s
Range	1000 ppm
Repeatability	1%
Lower Detectable Limit (LDL)	≤ 2 ppm
Resolution (16Bit ADC)	0.1 ppm
Maximum overload	2000 ppm
Linear range	2000 ppm
Environment	
Temperature Range	-20 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operation	
Operating principle	amperometric, 3-electrode
Operating principle Bias voltage	amperometric, 3-electrode 0 mV
Operating principle Bias voltage Recommended load resistor	amperometric, 3-electrode 0 mV 100 Ω
Operating principle Bias voltage Recommended load resistor Warm up time	amperometric, 3-electrode 0 mV 100 Ω < 60 s
Operating principle Bias voltage Recommended load resistor Warm up time Lifetime	amperometric, 3-electrode 0 mV 100 Ω < 60 s
Operating principle Bias voltage Recommended load resistor Warm up time Lifetime Long Term Sensitivity Drift	amperometric, 3-electrode 0 mV 100 Ω < 60 s < 1%/month
Operating principle Bias voltage Recommended load resistor Warm up time Lifetime Long Term Sensitivity Drift Zero Drift in clean air	amperometric, 3-electrode 0 mV 100 Ω < 60 s < 1 %/month < 2 ppm
Operating principle Bias voltage Recommended load resistor Warm up time Lifetime Long Term Sensitivity Drift Zero Drift in clean air Storage conditions	amperometric, 3-electrode 0 mV 100 Ω < 60 s < 1%/month < 2 ppm 0-20 °C
Operating principle Bias voltage Recommended load resistor Warm up time Lifetime Long Term Sensitivity Drift Zero Drift in clean air Storage conditions Storage life	amperometric, 3-electrode 0 mV 100 Ω < 60 s < 1%/month < 2 ppm 0-20 °C 6 month
Operating principleBias voltageRecommended load resistorWarm up timeLifetimeLong Term Sensitivity DriftZero Drift in clean airStorage conditionsStorage lifeExpected Life Time	amperometric, 3-electrode 0 mV 100 Ω < 60 s < 1%/month < 2 ppm 0-20 °C 6 month > 3 years
Operating principleBias voltageRecommended load resistorWarm up timeLifetimeLong Term Sensitivity DriftZero Drift in clean airStorage conditionsStorage lifeExpected Life TimeWarranty	amperometric, 3-electrode 0 mV 100 Ω < 60 s < 1%/month < 2 ppm 0-20 °C 6 month > 3 years 24 month
Operating principleBias voltageRecommended load resistorWarm up timeLifetimeLong Term Sensitivity DriftZero Drift in clean airStorage conditionsStorage lifeExpected Life TimeWarrantyHousing	amperometric, 3-electrode 0 mV 100 Ω < 60 s < 1 %/month < 2 ppm 0-20 °C 6 month > 3 years 24 month
Operating principleBias voltageRecommended load resistorWarm up timeLifetimeLong Term Sensitivity DriftZero Drift in clean airStorage conditionsStorage lifeExpected Life TimeWarrantyHousingHousing material	amperometric, 3-electrode 0 mV 100 Ω < 60 s < 1 %/month < 2 ppm 0-20 °C 6 month > 3 years 24 month
Operating principleBias voltageRecommended load resistorWarm up timeLifetimeLong Term Sensitivity DriftZero Drift in clean airStorage conditionsStorage lifeExpected Life TimeWarrantyHousing materialWeight	amperometric, 3-electrode 0 mV 100 Ω < 60 s < 60 s < 1%/month < 2 ppm 0-20 °C 6 month 0-20 °C 6 month 2 3 years 24 month



Part Number: 01-ES4-AG1-1000-01

Features

- High sensitivity
- Low cost alternative to PID
- No electrolyte leakage
- Low cost at large volumes
- Individually calibrated including test report
- Detect to most VOC Gases
- Strong signal to noise
- Smallest EC Sensor in the world
- Fast Response time

Typical applications

- Consumer Market
- General Gas Detection
- VOC Gas Detection
- Low Power Nose
- Mobile Phone Nose
- Indoor Air Quality
- Outdoor Air Quality
- Breath Alcohol Detector







All dimensions in mm. All tolerances are 0.10 mm unless otherwise stated





Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0.1
Carbon Dioxide	CO ₂	1000	0
Carbon Monoxide	СО	100	100
Chlorine	Cl ₂	1.0	-6
Dichlormethane	CH_2CI_2	30	0
Ethanol	$C_2H_5CI_2$	104	100
Ethylene oxide	C ₂ H ₅ OH	14	7
Ethyne	C ₂ H ₂	80	250
Hydrogen	H ₂	100	20
Hydrogen Sulphide	H ₂ S	10	400
Hydrogen Cyanide	HCN	10	9
Isopropanol	C ₃ H ₇ OH	< 4000	>750
Methan	CH ₄	30000	0
Methanal	НСНО		ok
Methanol	CH ₃ OH		ok
Methylpropene	C ₄ H ₈	15	18
Nitric Oxide	NO	25	n.e.
Nitrogen Dioxide	NO ₂	10	-5
Ozone	O ₃	0.5	0
Sulphur Dioxide	SO ₂		ok
Toluene	C ₇ H ₈		ok with bias
Xylene	C ₈ H ₁₀		ok
Gasoline			ok

Sensor reading in ppm after calibration to CO. Cross sensitivities indicated with ok showed a signal response under a bump test.

DISCLAIMER:Sensor performance is temperature dependent. Performance data stated is based on test conditions with new sensors at 23°C, 50%rH and 1 atm, flow rate>150qcm/min using EC-Sense recommended circuitry. Cross sensitivity gases are not target gases. Relations and performance can change, also with ageing of the sensor. In the interest of continued product improvement, EC-Sense reserves the right to change design features and specifications without prior notification. We do not accept any legal responsibility for customer applications of our sensors. EC-Sense accepts no liability for any consequential losses, injury or damage resulting from the use of this document, the information contained within or from any omissions or errors herein. This document does not constitute an offer for sale and the data contained is for guidance only and may not be taken as warranty. Any use of the given data must be assessed and determined by the user thereof to be in accordance with federal, state and local laws and regulations. All specifications outlined are subject to change without notice.

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Easy Gas Sensor ES4-AG1-2000 - All Gas

Technical Specification

Performance

Sensitivity	25±10 nA /ppm
Zero current	± 100 nA
Response time	
-1 ₅₀ -T _{an}	< 10 s < 30 s
Range	2000 ppm
Repeatability	1%
Lower Detectable Limit (LDL)	≤ 2 ppm
Resolution (16Bit ADC)	0.1 ppm
Maximum overload	5000 ppm
Linear range	5000 ppm
Environment	
Temperature Range	-20 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Oneration	
Operation	
Operation Operating principle	amperometric, 3-electrode
Operating principle Bias voltage	amperometric, 3-electrode 0 mV
Operating principle Bias voltage Recommended load resistor	amperometric, 3-electrode 0 mV 100 Ω
Operating principle Bias voltage Recommended load resistor Warm up time	amperometric, 3-electrode 0 mV 100 Ω < 60 s
Operating principle Bias voltage Recommended load resistor Warm up time Lifetime	amperometric, 3-electrode 0 mV 100 Ω < 60 s
Operation Operating principle Bias voltage Recommended load resistor Warm up time Lifetime Long Term Sensitivity Drift	amperometric, 3-electrode 0 mV 100 Ω < 60 s < 1%/month
Operation Operating principle Bias voltage Recommended load resistor Warm up time Lifetime Long Term Sensitivity Drift Zero Drift in clean air	amperometric, 3-electrode 0 mV 100 Ω < 60 s < 1%/month < 2 ppm
Operating principle Bias voltage Recommended load resistor Warm up time Lifetime Long Term Sensitivity Drift Zero Drift in clean air Storage conditions	amperometric, 3-electrode 0 mV 100 Ω < 60 s < 1%/month < 2 ppm 0-20 °C
Operation Operating principle Bias voltage Recommended load resistor Warm up time Lifetime Long Term Sensitivity Drift Zero Drift in clean air Storage conditions Storage life	amperometric, 3-electrode 0 mV 100 Ω < 60 s < 1%/month < 2 ppm 0-20 °C 6 month
OperationOperating principleBias voltageRecommended load resistorWarm up timeLifetimeLong Term Sensitivity DriftZero Drift in clean airStorage conditionsStorage lifeExpected Life Time	amperometric, 3-electrode 0 mV 100 Ω < 60 s < 1%/month < 2 ppm 0-20 °C 6 month > 3 years
OperationOperating principleBias voltageRecommended load resistorWarm up timeLifetimeLong Term Sensitivity DriftZero Drift in clean airStorage conditionsStorage lifeExpected Life TimeWarranty	amperometric, 3-electrode 0 mV 100 Ω < 60 s < 1%/month < 2 ppm 0-20 °C 6 month > 3 years 24 month
Operating principle Bias voltage Recommended load resistor Warm up time Lifetime Long Term Sensitivity Drift Zero Drift in clean air Storage conditions Storage life Expected Life Time Warranty Housing	amperometric, 3-electrode 0 mV 100 Ω < 60 s < 1 %/month < 2 ppm 0-20 °C 6 month > 3 years 24 month
OperationOperating principleBias voltageRecommended load resistorWarm up timeLifetimeLong Term Sensitivity DriftZero Drift in clean airStorage conditionsStorage lifeExpected Life TimeWarrantyHousingHousing material	amperometric, 3-electrode 0mV 100Ω < 60s < 1%/month < 2ppm 0-20°C 6 month > 3 years 24 month
OperationOperating principleBias voltageRecommended load resistorWarm up timeLifetimeLong Term Sensitivity DriftZero Drift in clean airStorage conditionsStorage lifeExpected Life TimeWarrantyHousing materialWeight	amperometric, 3-electrode 0 mV 100 Ω 4 60 s < 1 %/month < 2 ppm 0-20 °C 6 month > 3 years 24 month ABS < 6 g



Part Number: 01-ES4-AG1-2000-01

Features

- High sensitivity
- Low cost alternative to PID
- No electrolyte leakage
- Low cost at large volumes
- Individually calibrated including test report
- Detect to most VOC Gases
- Strong signal to noise
- Smallest EC Sensor in the world
- Fast Response time

Typical applications

- Consumer Market
- General Gas Detection
- VOC Gas Detection
- Low Power Nose
- Mobile Phone Nose
- Indoor Air Quality
- Outdoor Air Quality
- Breath Alcohol Detector







All dimensions in mm. All tolerances are 0.10 mm unless otherwise stated





Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0.1
Carbon Dioxide	CO ₂	1000	0
Carbon Monoxide	СО	100	100
Chlorine	Cl ₂	1.0	-6
Dichlormethane	CH_2CI_2	30	0
Ethanol	$C_2H_5CI_2$	104	100
Ethylene oxide	C ₂ H ₅ OH	14	7
Ethyne	C ₂ H ₂	80	250
Hydrogen	H ₂	100	20
Hydrogen Sulphide	H ₂ S	10	400
Hydrogen Cyanide	HCN	10	9
Isopropanol	C ₃ H ₇ OH	< 4000	>750
Methan	CH ₄	30000	0
Methanal	НСНО		ok
Methanol	CH ₃ OH		ok
Methylpropene	C ₄ H ₈	15	18
Nitric Oxide	NO	25	n.e.
Nitrogen Dioxide	NO ₂	10	-5
Ozone	O ₃	0.5	0
Sulphur Dioxide	SO ₂		ok
Toluene	C ₇ H ₈		ok with bias
Xylene	C ₈ H ₁₀		ok
Gasoline			ok

Sensor reading in ppm after calibration to CO. Cross sensitivities indicated with ok showed a signal response under a bump test.

DISCLAIMER:Sensor performance is temperature dependent. Performance data stated is based on test conditions with new sensors at 23°C, 50%rH and 1 atm, flow rate>150qcm/min using EC-Sense recommended circuitry. Cross sensitivity gases are not target gases. Relations and performance can change, also with ageing of the sensor. In the interest of continued product improvement, EC-Sense reserves the right to change design features and specifications without prior notification. We do not accept any legal responsibility for customer applications of our sensors. EC-Sense accepts no liability for any consequential losses, injury or damage resulting from the use of this document, the information contained within or from any omissions or errors herein. This document does not constitute an offer for sale and the data contained is for guidance only and may not be taken as warranty. Any use of the given data must be assessed and determined by the user thereof to be in accordance with federal, state and local laws and regulations. All specifications outlined are subject to change without notice.

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Easy Gas Sensor ES4-CO-100 - Carbon Monoxide

Technical Specification

Performance

Sensitivity	25 ±10 n A / ppm
Zero current	± 100 nA
Response time	
-T ₅₀	<10 s
-1 ₉₀ Range	< 30 S 100 ppm
Repeatability	<1%
Lower Detectable Limit (LDL)	≤2 ppm
Resolution (16Bit ADC)	0.1 ppm
Maximum overload	2000 ppm
Linear range	2000 ppm
Environment	
Temperature Range	-40 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric, 3-electrode
Bias voltage	0 mV
Recommended load resistor	100 Ω
Warm up time	< 60 s
Lifetime	
Long Term Sensitivity Drift	<1%/month
Zero Drift in clean air	< 2 ppm
Storage conditions	0-20 °C
Storage life	6 month
Expected Life Time	> 5 years
Warranty	24 month
Housing	
Housing material	ABS
Weight	< 6g



Part Number: 01-ES4-CO-100-01

Features

- Extreme linear response up to high concentration
- Low noise
- No electrolyte leakage
- Low cost at large volumes
- Fast response
- Individually calibrated including test report

Typical applications

- TLV-monitoring, leakage detection
- Oil & Petrochemical Industry
- Steel Industry
- Parking garages







All dimensions in mm. All tolerances are 0.10 mm unless otherwise stated





Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0
Carbon Dioxide	CO ₂	1000	0
Chlorine	Cl ₂	1.0	0
Hydrocarbons (unsaturated)	-		
Hydrogen	H ₂	100	50
Hydrogen Sulphide	H ₂ S	50	0
Hydrogen Cyanide	HCN	50	0
Isopropanol	C ₃ H ₇ OH	1000	0
Nitric Oxide	NO	25	n.e.
Nitrogen Dioxide	NO ₂	10	0

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Easy Gas Sensor ES4-CO-1000 - Carbon Monoxide

Technical Specification

Performance

Sensitivity	25 ±10 n A / ppm
Zero current	± 100 nA
Response time	
-1 ₅₀	<105
Range	1000 ppm
Repeatability	<1 %
Lower Detectable Limit (LDL)	≤2 ppm
Resolution (16Bit ADC)	0.1 ppm
Maximum overload	2000 ppm
Linear range	2000 ppm
Environment	
Temperature Range	-40 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric, 3-electrode
Bias voltage	0 mV
Recommended load resistor	100 Ω
Warm up time	< 60 s
Lifetime	
Long Term Sensitivity Drift	<1%/month
Zero Drift in clean air	< 2 ppm
Storage conditions	0-20 °C
Storage life	6 month
Expected Life Time	> 5 years
Warranty	24 month
Housing	
Housing material	ABS
Weight	< 6g



Part Number: 01-ES4-CO-1000-01

Features

- Extreme linear response up to high concentration
- Low noise
- No electrolyte leakage
- Low cost at large volumes
- Fast response
- Individually calibrated including test report

Typical applications

- TLV-monitoring, leakage detection
- Oil & Petrochemical Industry
- Steel Industry
- Parking garages






All dimensions in mm. All tolerances are 0.10 mm unless otherwise stated





Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0
Carbon Dioxide	CO ₂	1000	0
Chlorine	Cl ₂	1.0	0
Hydrocarbons (unsaturated)	-		
Hydrogen	H ₂	100	50
Hydrogen Sulphide	H ₂ S	50	0
Hydrogen Cyanide	HCN	50	0
Isopropanol	C ₃ H ₇ OH	1000	0
Nitric Oxide	NO	25	n.e.
Nitrogen Dioxide	NO ₂	10	0

DISCLAIMER:Sensor performance is temperature dependent. Performance data stated is based on test conditions with new sensors at 23°C, 50%rH and 1 atm, flow rate>150qcm/min using EC-Sense recommended circuitry. Cross sensitivity gases are not target gases. Relations and performance can change, also with ageing of the sensor. In the interest of continued product improvement, EC-Sense reserves the right to change design features and specifications without prior notification. We do not accept any legal responsibility for customer applications of our sensors. EC-Sense accepts no liability for any consequential losses, injury or damage resulting from the use of this document, the information contained within or from any omissions or errors herein. This document does not constitute an offer for sale and the data contained is for guidance only and may not be taken as warranty. Any use of the given data must be assessed and determined by the user thereof to be in accordance with federal, state and local laws and regulations. All specifications outlined are subject to change without notice.

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Easy Gas Sensor ES4-CO-10000 - Carbon Monoxide

Technical Specification

Performance

Sensitivity	10nA ± 3nA
Zero current	± 100 nA
Response time	10
-1 ₅₀ -T _{eo}	<105 <305
Range	10000 ppm
Repeatability	<1%
Lower Detectable Limit (LDL)	≤10 ppm
Resolution (16Bit ADC)	1ppm
Maximum overload	30000 ppm
Linear range	30000 ppm
Environment	
Temperature Range	-40°C to 50°C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric, 3-electrode
Bias voltage	0 mV
Recommended load resistor	100 Ω
Warm up time	< 60 s
Lifetime	
Long Term Sensitivity Drift	< 1 %/month
Zero Drift in clean air	< 2 ppm
Storage conditions	0-20 °C
Storage life	6 month
Expected Life Time	> 3 years
Warranty	24 month
Housing	
Housing material	ABS
Weight	< 6 g



Part Number: 01-ES4-CO-10000-01

Features

- Extreme linear response up to high concentration
- Low noise
- No electrolyte leakage
- Low cost at large volumes
- Fast response
- Individually calibrated including test report

- TLV-monitoring, leakage detection
- Oil & Petrochemical Industry
- Steel Industry
- Parking garages







All dimensions in mm. All tolerances are 0.10 mm unless otherwise stated

Cross sensitivity

Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0
Carbon Dioxide	CO ₂	1000	0
Chlorine	Cl ₂	1.0	0
Hydrocarbons (unsaturated)	-		
Hydrogen	H ₂	100	80
Hydrogen Sulphide	H ₂ S	50	0
Hydrogen Cyanide	HCN	50	0
Isopropanol	C ₃ H ₇ OH	1000	0
Nitric Oxide	NO	25	n.e.
Nitrogen Dioxide	NO ₂	100	0

DISCLAIMER:Sensor performance is temperature dependent. Performance data stated is based on test conditions with new sensors at 23°C, 50%rH and 1 atm, flow rate>150qcm/min using EC-Sense recommended circuitry. Cross sensitivity gases are not target gases. Relations and performance can change, also with ageing of the sensor. In the interest of continued product improvement, EC-Sense reserves the right to change design features and specifications without prior notification. We do not accept any legal responsibility for customer applications of our sensors. EC-Sense accepts no liability for any consequential losses, injury or damage resulting from the use of this document, the information contained within or from any omissions or errors herein. This document does not constitute an offer for sale and the data contained is for guidance only and may not be taken as warranty. Any use of the given data must be assessed and determined by the user thereof to be in accordance with federal, state and local laws and regulations. All specifications outlined are subject to change without notice.

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Easy Gas Sensor ES4-H₂-1000 - Hydrogen

Technical Specification

Performance

Sensitivity	11±3 nA /ppm
Zero current	± 100 nA
Response time	
-1 ₅₀ -T	< 10 s < 30 s
Range	1000 ppm
Repeatability	1%
Lower Detectable Limit (LDL)	≤ 2 ppm
Resolution (16Bit ADC)	0.1 ppm
Maximum overload	2000 ppm
Linear range	2000 ppm
Environment	
Temperature Range	-40 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric
Bias voltage	0 mV
Recommended load resistor	100 Ω
Warm up time	< 20 s
Lifetime	
Long Term Sensitivity Drift	< 1 %/month
Zero Drift in clean air	< 10 ppm
Storage conditions	0-20 °C
Storage life	6 month
Expected Life Time	> 5 years
Warranty	12 month
Housing	
Housing material	ABS
Weight	< 6 g



Part Number: 01-ES4-H₂-1000-01

Features

- Extreme linear response up to high concentration
- Low noise
- Short warm up time
- No electrolyte leakage
- Low cost at large volumes
- Fast response
- Individually calibrated including test report

- Ambient monitoring
- Very sensitive leak detection







All dimensions in mm. All tolerances are 0.10 mm unless otherwise stated





Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0
Carbon Dioxide	CO ₂	1000	n.e.
Carbon Monoxide	СО	50	46
Chlorine	Cl ₂	10	0
Hydrocarbons (unsaturated)			n.a.
Hydrogen Cyanide	HCN	10	0
Isopropanol	C ₃ H ₇ OH	1000	n.a.
Nitric Oxide	NO	25	n.a.
Nitrogen Dioxide	NO ₂	10	0

DISCLAIMER:Sensor performance is temperature dependent. Performance data stated is based on test conditions with new sensors at 23°C, 50%rH and 1 atm, flow rate>150qcm/min using EC-Sense recommended circuitry. Cross sensitivity gases are not target gases. Relations and performance can change, also with ageing of the sensor. In the interest of continued product improvement, EC-Sense reserves the right to change design features and specifications without prior notification. We do not accept any legal responsibility for customer applications of our sensors. EC-Sense accepts no liability for any consequential losses, injury or damage resulting from the use of this document, the information contained within or from any omissions or errors herein. This document does not constitute an offer for sale and the data contained is for guidance only and may not be taken as warranty. Any use of the given data must be assessed and determined by the user thereof to be in accordance with federal, state and local laws and regulations. All specifications outlined are subject to change without notice.

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Easy Gas Sensor ES4-H₂-20000 - Hydrogen

Technical Specification

Performance

Sensitivity	3±2 nA /ppm
Zero current	± 5 nA
Response time	
-1 ₅₀ -T _{an}	< 10 s < 30 s
Range	20000 ppm
Repeatability	1%
Lower Detectable Limit (LDL)	≤ 100 ppm
Resolution (16Bit ADC)	10 ppm
Maximum overload	40000 ppm
Linear range	20000 ppm
Environment	
Temperature Range	-40 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
- Pointerie	
Operating principle	amperometric, 3-electrode
Operating principle Bias voltage	amperometric, 3-electrode 0 mV
Operating principle Bias voltage Recommended load resistor	amperometric, 3-electrode 0 mV 100 Ω
Operating principle Bias voltage Recommended load resistor Warm up time	amperometric, 3-electrode 0 mV 100 Ω < 20 s
Operating principle Bias voltage Recommended load resistor Warm up time Lifetime	amperometric, 3-electrode 0 mV 100 Ω < 20 s
Operating principle Bias voltage Recommended load resistor Warm up time Lifetime Long Term Sensitivity Drift	amperometric, 3-electrode 0 mV 100 Ω < 20 s < 1 %/month
Operating principle Bias voltage Recommended load resistor Warm up time Lifetime Long Term Sensitivity Drift Zero Drift in clean air	amperometric, 3-electrode 0 mV 100 Ω < 20 s < 1 %/month < 10 ppm
Operating principleBias voltageRecommended load resistorWarm up timeLifetimeLong Term Sensitivity DriftZero Drift in clean airStorage conditions	amperometric, 3-electrode 0 mV 100 Ω < 20 s < 1%/month < 10 ppm 0-20 °C
Operating principleBias voltageRecommended load resistorWarm up timeLifetimeLong Term Sensitivity DriftZero Drift in clean airStorage conditionsStorage life	amperometric, 3-electrode 0 mV 100 Ω < 20 s < 1%/month < 10 ppm 0-20 °C 6 month
Operating principleBias voltageRecommended load resistorWarm up timeLifetimeLong Term Sensitivity DriftZero Drift in clean airStorage conditionsStorage lifeExpected Life Time	amperometric, 3-electrode 0 mV 100 Ω < 20 s < 1%/month < 10 ppm 0-20 °C 6 month > 5 years
Operating principleBias voltageRecommended load resistorWarm up timeLifetimeLong Term Sensitivity DriftZero Drift in clean airStorage conditionsStorage lifeExpected Life TimeWarranty	amperometric, 3-electrode 0 mV 100 Ω < 20 s < 1%/month < 10 ppm 0-20 °C 6 month > 5 years 12 month
Operating principleBias voltageRecommended load resistorWarm up timeLifetimeLong Term Sensitivity DriftZero Drift in clean airStorage conditionsStorage lifeExpected Life TimeWarrantyHousing	amperometric, 3-electrode 0 mV 100 Ω < 20 s < 1 %/month < 10 ppm 0-20 °C 6 month > 5 years 12 month
Operating principleBias voltageRecommended load resistorWarm up timeLifetimeLong Term Sensitivity DriftZero Drift in clean airStorage conditionsStorage lifeExpected Life TimeWarrantyHousing material	amperometric, 3-electrode 0 mV 100 Ω 2 20 s < 1 %/month < 1 %/month < 10 ppm 0-20 °C 6 month 5 5 years 12 month
Operating principleBias voltageRecommended load resistorWarm up timeLifetimeLong Term Sensitivity DriftZero Drift in clean airStorage conditionsStorage lifeExpected Life TimeWarrantyHousing materialWeight	amperometric, 3-electrode 0 mV 100 Ω < 20 s < 10 s < 20 s < 1 %/month < 10 ppm 0-20 °C 6 month 5 years 12 month ABS < 6 g



Part Number: 01-ES4-H₂-20000-01

Features

- Extreme linear response up to high concentration
- Low noise
- Short warm up time
- No electrolyte leakage
- Low cost at large volumes
- Fast response
- Individually calibrated including test report

- Ambient monitoring
- Very sensitive leak detection







All dimensions in mm. All tolerances are 0.10 mm unless otherwise stated





Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0
Carbon Dioxide	CO ₂	1000	n.e.
Carbon Monoxide	СО	50	46
Chlorine	Cl ₂	10	0
Hydrocarbons (unsaturated)			n.a.
Hydrogen Cyanide	HCN	10	0
Isopropanol	C ₃ H ₇ OH	1000	n.a.
Nitric Oxide	NO	25	n.a.
Nitrogen Dioxide	NO ₂	10	0

DISCLAIMER:Sensor performance is temperature dependent. Performance data stated is based on test conditions with new sensors at 23°C, 50%rH and 1 atm, flow rate>150qcm/min using EC-Sense recommended circuitry. Cross sensitivity gases are not target gases. Relations and performance can change, also with ageing of the sensor. In the interest of continued product improvement, EC-Sense reserves the right to change design features and specifications without prior notification. We do not accept any legal responsibility for customer applications of our sensors. EC-Sense accepts no liability for any consequential losses, injury or damage resulting from the use of this document, the information contained within or from any omissions or errors herein. This document does not constitute an offer for sale and the data contained is for guidance only and may not be taken as warranty. Any use of the given data must be assessed and determined by the user thereof to be in accordance with federal, state and local laws and regulations. All specifications outlined are subject to change without notice.

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Easy Gas Sensor ES4-H₂S-100 - Hydrogen Sulfide

Technical Specification

Performance

Sensitivity	90±20 nA /ppm
Zero current	± 20 nA
Response time	
-T_ ₅₀	< 10s
Range	100 ppm
Repeatability	1%
Lower Detectable Limit (LDL)	≤1ppm
Resolution (16Bit ADC)	0.1 ppm
Maximum overload	200 ppm
Linear range	200 ppm
Environment	
Temperature Range	-40 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric
Bias voltage	0 mV
Recommended load resistor	100 Ω
Warm up time	< 20 s
Lifetime	
Long Term Sensitivity Drift	< 1 %/month
Zero Drift in clean air	< 2 ppm
Storage conditions	0-20 °C
Storage life	6 month
Expected Life Time	> 3 years
Warranty	12 month
Housing	
Housing material	ABS
Weight	< 6g



Part Number: 01-ES4-H₂S-100-01

Features

- Extreme linear response up to high concentration
- Low noise
- Short warm up time
- No electrolyte leakage
- Low cost at large volumes
- Fast response
- Individually calibrated including test report

- Water treatment plants
- Biogas applications
- Portable & fixed point applications
- Leakage detection







All dimensions in mm. All tolerances are 0.10 mm unless otherwise stated





Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0
Carbon Dioxide	CO ₂	1000	0
Carbon Monoxide	СО	50	3
Chlorine	Cl ₂	10	-1.5
Hydrocarbons (unsaturated)			n.e.
Hydrogen	H ₂	100	3
Hydrogen Cyanide	HCN	10	0
Isopropanol	C ₃ H ₇ OH	1000	n.e.
Nitric Oxide	NO	25	n.a.
Nitrogen Dioxide	NO ₂	10	-2.2

DISCLAIMER:Sensor performance is temperature dependent. Performance data stated is based on test conditions with new sensors at 23°C, 50%rH and 1 atm, flow rate>150qcm/min using EC-Sense recommended circuitry. Cross sensitivity gases are not target gases. Relations and performance can change, also with ageing of the sensor. In the interest of continued product improvement, EC-Sense reserves the right to change design features and specifications without prior notification. We do not accept any legal responsibility for customer applications of our sensors. EC-Sense accepts no liability for any consequential losses, injury or damage resulting from the use of this document, the information contained within or from any omissions or errors herein. This document does not constitute an offer for sale and the data contained is for guidance only and may not be taken as warranty. Any use of the given data must be assessed and determined by the user thereof to be in accordance with federal, state and local laws and regulations. All specifications outlined are subject to change without notice.

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Easy Gas Sensor ES4-H₂S-500 - Hydrogen Sulfide

Technical Specification

Performance

Sensitivity	90±20 nA /ppm
Zero current	± 20 nA
Response time	
-1 ₅₀ -T _{en}	< 10 s < 30 s
Range	500 ppm
Repeatability	1%
Lower Detectable Limit (LDL)	≤ 2 ppm
Resolution (16Bit ADC)	0.1 ppm
Maximum overload	1000 ppm
Linear range	1000 ppm
Environment	
Temperature Range	-40 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric
Bias voltage	0 mV
Recommended load resistor	100 Ω
Warm up time	< 20 s
Lifetime	
Long Term Sensitivity Drift	< 1 %/month
Zero Drift in clean air	< 2 ppm
Storage conditions	0-20 °C
Storage life	6 month
Expected Life Time	> 3 years
Warranty	12 month
Housing	
Housing material	ABS
Weight	< 6 g



Part Number: 01-ES4-H₂S-500-01

Features

- Extreme linear response up to high concentration
- Low noise
- Short warm up time
- No electrolyte leakage
- Low cost at large volumes
- Fast response
- Individually calibrated including test report

- Water treatment plants
- Biogas applications
- Portable & fixed point applications
- Leakage detection







All dimensions in mm. All tolerances are 0.10 mm unless otherwise stated





Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0
Carbon Dioxide	CO ₂	1000	0
Carbon Monoxide	СО	50	3
Chlorine	Cl ₂	10	-1.5
Hydrocarbons (unsaturated)			n.e.
Hydrogen	H ₂	100	3
Hydrogen Cyanide	HCN	10	0
Isopropanol	C ₃ H ₇ OH	1000	n.e.
Nitric Oxide	NO	25	n.a.
Nitrogen Dioxide	NO ₂	10	-2.2

DISCLAIMER: Sensor performance is temperature dependent. Performance data stated is based on test conditions with new sensors at 23°C, 50%rH and 1 atm, flow rate>150gcm/min using EC-Sense recommended circuitry. Cross sensitivity gases are not target gases. Relations and performance can change, also with ageing of the sensor. In the interest of continued product improvement, EC-Sense reserves the right to change design features and specifications without prior notification. We do not accept any legal responsibility for customer applications of our sensors. EC-Sense accepts no liability for any consequential losses, injury or damage resulting from the

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Easy Gas Sensor ES4-H₂S-5000 - Hydrogen Sulfide

Technical Specification

Performance

Sensitivity	10±3 nA /ppm
Zero current	± 20 nA
Response time	
-1 ₅₀ -T	< 10 s < 30 s
Range	5000 ppm
Repeatability	1%
Lower Detectable Limit (LDL)	≤ 5 ppm
Resolution (16Bit ADC)	1 ppm
Maximum overload	10000 ppm
Linear range	10000 ppm
Environment	
Temperature Range	-40 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric, 3-electrode
Bias voltage	0 mV
Recommended load resistor	100 Ω
Warm up time	< 20 s
Lifetime	
Long Term Sensitivity Drift	< 1 %/month
Zero Drift in clean air	< 2 ppm
Storage conditions	0-20 °C
Storage life	6 month
Expected Life Time	> 3 years
Warranty	12 month
Housing	
Housing material	ABS
Weight	< 6 g



Part Number: 01-ES4-H₂S-5000-01

Features

- Extreme linear response up to high concentration
- Low noise
- Short warm up time
- No electrolyte leakage
- Low cost at large volumes
- Fast response
- Individually calibrated including test report

- Water treatment plants
- Biogas applications
- Portable & fixed point applications
- Leakage detection







All dimensions in mm. All tolerances are 0.10 mm unless otherwise stated



Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0
Carbon Dioxide	CO ₂	1000	0
Carbon Monoxide	СО	50	3
Chlorine	Cl ₂	10	-1.5
Hydrocarbons (unsaturated)			n.e.
Hydrogen	H ₂	100	3
Hydrogen Cyanide	HCN	10	0
Isopropanol	C ₃ H ₇ OH	1000	n.e.
Nitric Oxide	NO	25	n.a.
Nitrogen Dioxide	NO ₂	10	-2.2

DISCLAIMER:Sensor performance is temperature dependent. Performance data stated is based on test conditions with new sensors at 23°C, 50%rH and 1 atm, flow rate>150qcm/min using EC-Sense recommended circuitry. Cross sensitivity gases are not target gases. Relations and performance can change, also with ageing of the sensor. In the interest of continued product improvement, EC-Sense reserves the right to change design features and specifications without prior notification. We do not accept any legal responsibility for customer applications of our sensors. EC-Sense accepts no liability for any consequential losses, injury or damage resulting from the use of this document, the information contained within or from any omissions or errors herein. This document does not constitute an offer for sale and the data contained is for guidance only and may not be taken as warranty. Any use of the given data must be assessed and determined by the user thereof to be in accordance with federal, state and local laws and regulations. All specifications outlined are subject to change without notice.

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Easy Gas Sensor ES4-NO₂-50 - Nitrogen Dioxide

Technical Specification

Performance

Sensitivity	-20±10 nA /ppm
Zero current	± 2 nA
Response time	
-1 ₅₀ -T	< 10 s < 30 s
Range	50 ppm
Repeatability	1%
Lower Detectable Limit (LDL)	≤ 1ppm
Resolution (16Bit ADC)	0.1 ppm
Maximum overload	500 ppm
Linear range	500 ppm
Environment	
Temperature Range	-40 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric, 3-electrode
Bias voltage	0 mV
Recommended load resistor	100 Ω
Warm up time	< 20 s
Lifetime	
Long Term Sensitivity Drift	< 1 %/month
Zero Drift in clean air	< 0.2 ppm
Storage conditions	0-20 °C
Storage life	6 month
Expected Life Time	> 3 years
Warranty	12 month
Housing	
Housing material	ABS
Weight	< 6 g



Part Number: 01-ES4-NO₂-50-01

Features

- Extreme linear response up to high concentration
- Fast response
- Low cost alternative to PID
- Low noise
- No electrolyte leakage
- Low cost at large volumes
- Individually calibrated including test report

- TLV monitoring
- Parking garages









Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0
Carbon Dioxide	CO ₂	1000	0
Carbon Monoxide	СО	50	0
Chlorine	Cl ₂	10	10
Hydrocarbons (unsaturated)	-		n.a.
Hydrogen	H ₂	100	0
Hydrogen Cyanide	HCN	10	0
Isopropanol	C ₃ H ₇ OH	1000	n.a.
Nitric Oxide	NO	25	n.a.
Nitrogen Dioxide	NO ₂	10	0

DISCLAIMER:Sensor performance is temperature dependent. Performance data stated is based on test conditions with new sensors at 23°C, 50%rH and 1 atm, flow rate>150qcm/min using EC-Sense recommended circuitry. Cross sensitivity gases are not target gases. Relations and performance can change, also with ageing of the sensor. In the interest of continued product improvement, EC-Sense reserves the right to change design features and specifications without prior notification. We do not accept any legal responsibility for customer applications of our sensors. EC-Sense accepts no liability for any consequential losses, injury or damage resulting from the use of this document, the information contained within or from any omissions or errors herein. This document does not constitute an offer for sale and the data contained is for guidance only and may not be taken as warranty. Any use of the given data must be assessed and determined by the user thereof to be in accordance with federal, state and local laws and regulations. All specifications outlined are subject to change without notice.

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Easy Gas Sensor ES4-NO₂-100 - Nitrogen Dioxide

Technical Specification

Performance

Sensitivity	-20±10 nA /ppm
Zero current	± 2 nA
Response time	
-1 ₅₀ -T _{an}	< 10 s < 30 s
Range	100 ppm
Repeatability	1%
Lower Detectable Limit (LDL)	≤ 1ppm
Resolution (16Bit ADC)	0.1 ppm
Maximum overload	500 ppm
Linear range	500 ppm
Environment	
Temperature Range	-40 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric, 3-electrode
Bias voltage	0 mV
Recommended load resistor	100 Ω
Warm up time	< 20 s
Lifetime	
Long Term Sensitivity Drift	< 1 %/month
Zero Drift in clean air	< 0.2 ppm
Storage conditions	0-20 °C
Storage life	6 month
Expected Life Time	> 3 years
Warranty	12 month
Housing	
Housing material	ABS
Weight	< 6 g



Part Number: 01-ES4-NO₂-100-01

Features

- Extreme linear response up to high concentration
- Fast response
- Low cost alternative to PID
- Low noise
- No electrolyte leakage
- Low cost at large volumes
- Individually calibrated including test report

- TLV monitoring
- Parking garages









Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0
Carbon Dioxide	CO ₂	1000	0
Carbon Monoxide	СО	50	0
Chlorine	Cl ₂	10	10
Hydrocarbons (unsaturated)	-		n.a.
Hydrogen	H ₂	100	0
Hydrogen Cyanide	HCN	10	0
Isopropanol	C ₃ H ₇ OH	1000	n.a.
Nitric Oxide	NO	25	n.a.
Nitrogen Dioxide	NO ₂	10	0

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Easy Gas Sensor ES4-NO₂-1000 - Nitrogen Dioxide

Technical Specification

Performance

Sensitivity	10±3 nA /ppm
Zero current	± 2 nA
Response time	
-1 ₅₀ -T _{an}	< 10 s < 30 s
Range	1000 ppm
Repeatability	1%
Lower Detectable Limit (LDL)	≤ 2 ppm
Resolution (16Bit ADC)	0.1 ppm
Maximum overload	5000 ppm
Linear range	5000 ppm
Environment	
Temperature Range	-40 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa
Operation	
Operating principle	amperometric
Bias voltage	0 mV
Recommended load resistor	100 Ω
Warm up time	< 20 s
Lifetime	
Long Term Sensitivity Drift	< 1 %/month
Zero Drift in clean air	< 0.2 ppm
Storage conditions	0-20 °C
Storage life	6 month
Expected Life Time	> 3 years
Warranty	12 month
Housing	
Housing material	ABS
Weight	< 6 g



Part Number: 01-ES4-NO₂-1000-01

Features

- Extreme linear response up to high concentration
- Fast response
- Low cost alternative to PID
- Low noise
- No electrolyte leakage
- Low cost at large volumes
- Individually calibrated including test report

Typical applications

- TLV monitoring
- Parking garages





All dimensions in mm. All tolerances are 0.10 mm unless otherwise stated,



Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0
Carbon Dioxide	CO ₂	1000	0
Carbon Monoxide	СО	50	0
Chlorine	Cl ₂	10	10
Hydrocarbons (unsaturated)	-		n.a.
Hydrogen	H ₂	100	0
Hydrogen Cyanide	HCN	10	0
Isopropanol	C ₃ H ₇ OH	1000	n.a.
Nitric Oxide	NO	25	n.a.
Nitrogen Dioxide	NO ₂	10	0

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Easy Gas Sensor ES4-O₂-25% - Oxygen

Technical Specification

Performance



Environment

Temperature Range	-20 to 50 °C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa

Operation

3 Electrode Electrochemical sensor Bias voltage	-400 to -600 mV
Warm up time	600s
Lifetime	
Long Term Sensitivity Drift	<1%/month
Zero Drift in clean air	< 0.2 % O ₂
Expected Life Time	> 3 years
Storage life	6 month
Warranty	24 month
Storage conditions	0-20 °C
Housing	
Housing material	ABS
Weight	< 6 g



Part Number: 01-ES4-O₂-25-01

Features

- Strong signal to noise
- Smallest EC Sensor in the world
- Capillary Sensor
- Response Time Typically 4s
- Low Power Consumption
- 400-600mV Bias Voltage
- Lead Free

- Industrial
- Medical
- Food Industry
- Combustion Control







All dimensions in mm. All tolerances are 0.10 mm unless otherwise stated





Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	20	0
Carbon Dioxide	CO ₂	5000	0
Carbon Monoxide	СО	50	0
Chlorine	Cl ₂	1.0	0
Hydrocarbons (unsaturated)		1 %	0
Hydrogen	H ₂	100	0
Hydrogen Cyanide	HCN	10	0
Isopropanol	C ₃ H ₇ OH	1000	0
Nitric Oxide	NO	25	0
Nitrogen Dioxide	NO ₂	10	0
Ozone	O ₃	0.5	0
Sulphur Dioxide	SO ₂	20	0

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Sockets



Part Number: 02-ES1-Sock-03-01

Notes

1. Materials

- Insulator: Polyimide film
- Terminal: Brass, C36000, ASTM-B-16
- Contact: BeCu, C17200, ASTM-B-194

2. Plating

- Terminal
 - G: .000010 [0.00025] MIN. Gold over .000050 [0.00127] MIN Nickel
 - M: 000100 [0.00254] MIN. Matte tin over 0.000050 [0.00127] MIN Nickel
 - T: .000200 [0.00254] MIN. 90% Tin, 10% [0.00127] MIN Nickel
- Contact
 - G: .000030 [0.00076] MIN. Gold over .000050 [0.00127] MIN Nickel
 - T: .000150 [0.00381] MIN. 90% TIN. 10% lead over .000050 [0.00127] MIN Nickel



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USB Stick

Description

The USB Stick is a very quick and comfortable solution for the detection of gas leaks. Likewise it makes initial testing of our sensors as simple as possible. We have adapted our sensors to an USB which can be directly connected to a PC. The USB is always delivered with software that allows online concentration view, trend graph and datafiling.

Framework requriements

Administrator rights to run the software. Laptop, PC with free USB port. Operation system Microsoft Windows 2000 or Windows XP, Microsoft Vista 07, Windows 7, Microsoft Excel has to be installed.

Option

USB stick extension cable, length up to 2m, helpful for typical customer application.

Features

Part Number: 03-USB-Gas-01-01 03-USB-02-01-01

- Online concentration view
- Trend graph and data filing in excel
- Simply and quick installation in 4 steps only

Dimensions



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