TOXIC AND EXPLOSIVE GAS TRANSMITTERS
RAS series with enose® Technology

DESCRIPTION

RAS/AD and RAS/DY are rugged, intelligent gas detectors for a wide variety of Explosive and Toxic gases.

Main Characteristic

- Microprocessor based
- 4-20 mA output and/or
- Three Voltage free relay contacts output
- RS-485 MODBUS RTU serial interface or Bluetooth protocol for remote control maintenance
- LCD Display 8x2 characters
- Non Intrusive "One Person" calibration procedure
- Fully programmable
- Small size and Low Power consumption
- Certificate **ATEX II 2G EEx-d IIC T6**

RAS-AD

Aluminium or Stainless Steel Explosion Proof housing

- Ideal to detect combustible or toxic gases and solvents
- Sensors with strong poison resistant properties

Gas Detectors RAS Series are built in conformity to 94/9/CE ATEX Directive, included functional performances, moreover they are in conformity to SIL 2, being suitable to be part of safety systems.

Bluetooth

Thanks to introduction of Modbus or Bluetooth protocols it is possible to establish a direct communication between the sensor and your PC, PDA or Mobile Phone.
This features allow you a complete control of all sensor's functional parameters such as Zero, Span, Sensitivity, Alarm Thresholds TWA, STEL and Download maintenance operations reports or events Log.

ATEX

RAS-DY

Aluminium or Stainless Steel Explosion Proof housing with display

- Robust construction
- Built-in or remote sensor transmitter
- Built-in relays enable full stand-alone capability
- Magnetic Keypad to change settings

MAIN SUBSTANCES LIST (IR Infrared Technology)

SUBSTANCES	DESCRIPTION	PRODUCT CODE
Methane (CH4)	Infrared sensor for fixed detecting systems of explosive substances 0-100%L.E.L.	RAS/AD/201/...
Propane (C3H8)	Infrared sensor for fixed detecting systems of explosive substances 0-100% L.E.L.	RAS/AD/204/...
Carbon Dioxide (CO2)	Infrared sensor for fixed detecting systems of toxic substances up to 0-100%Vol.	RAS/AD/279/...

MAIN SUBSTANCES LIST (Catalytic Technology)

Methane (CH4)	General purpose catalytic sensor for fixed detecting systems of explosive substances 0-100%L.E.L.	RAS/AD/101/...
L.P.G. (Mix)	General purpose catalytic sensor for fixed detecting systems of explosive substances 0-100%L.E.L.	RAS/AD/102/...
Propane (C3H8)	General purpose catalytic sensor for fixed detecting systems of explosive substances 0-100% L.E.L.	RAS/AD/104/...
Hydrogen (H2)	General purpose catalytic sensor for the detection of H_2 0-100% L.E.L.	RAS/AD/127/...
Ammonia (NH3)	General purpose catalytic sensor NH_3 0-100% L.E.L.	RAS/AD/140/...
Ammonia (NH3)	High Quality catalytic sensor NH_3 0-2% v/v (0-20.000ppm)	RAS/AD/141S/...

Many other substances available, please contact us or visit our web site www.oggionisas.com

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MAIN SUBSTANCES LIST (Electrochemical Cells Technology)

SUBSTANCES	DESCRIPTION	PRODUCT CODE
Ammonia (NH3)	Electrochemical Cell for NH_3 0-100 / 0-500 / 0-1.000 / 0-5.000 PPM	RAS/AD/340/...
Carbon monoxide (CO)	Electrochemical Cell for CO 0-300 / 0-500 PPM	RAS/AD/320/...
Hydrogen sulphide (H2S)	Electrochemical Cell for H2S 0-20 / 0-100 PPM	RAS/AD/369/...
Oxygen (O2)	Electrochemical Cell for O2 0-25% Vol.	RAS/AD/361/...
Sulphur dioxide (SO2)	Electrochemical Cell for SO2 0-20 PPM	RAS/AD/370/...

MAIN SUBSTANCES LIST (Chemical absorption Technology)

Ammonia (NH3)	Chemical absorbtion sensor optimised for NH_3 0-1.000 PPM	RAS/AD/440/...
Carbon monoxide (CO)	Chemical absorbtion sensor optimised for CO 0-100 / 0-300 PPM	RAS/AD/420/...
Hydrogen sulphide (H2S)	Chemical absorbtion sensor optimised for H2S 0-20 PPM	RAS/AD/469/...
VOCs	Chemical absorbtion sensor optimised for VOCs 0-5.000 PPM	RAS/AD/471/...
Carbon Dioxide (CO2)	Chemical absorbtion sensor optimised for CO2 0-10.000 PPM	RAS/AD/479/...

OUTPUTS CONFIGURATIONS

Outputs	Description	Code
4-20 mA + RS485	Analog current loop + Serial RS485 Modbus Protocol	**AAS** (RAS/AD & DY)
3 Relays + RS485	Voltage free contacts 1A 100 Vdc max. + Serial RS485 Modbus Protocol	**CCS** (RAS/AD only)
3 Relays + 4-20mA + RS485	Voltage free contacts 1A 100 Vdc max. + Analog current loop + Serial RS485 Modbus Protocol	**CAS** (RAS/DY only)

GENERAL SPECIFICATIONS

Sensors	Catalitytic pellistor or electrochemical cells or Infrared or chemical absorbtion cell
Code of protection	ATEX II 2G EEx-d IIC T6
Location	Hazardous area
Degree of protection	IP65
Short-term repeatability	±2% FSD 60 min.
Long-term repeatability	±5% FSD 3 months.
Accuracy(linearity)	±5% FSD

MECHANICAL SPECIFICATIONS

Overall dimensions	170x100x70 mm
Material	Aluminium alloy with chrome plated brass or Stainless Steel
Weight	0.8 Kg.
Mounting	2x6 mm holes
Junction box attachment	3/4" Conical thread UNI 6125

ENVIRONMENTAL SPECIFICATIONS

EMC	According to EN61000-4
Storage temperature	-40 to85 °C
Operating temperature	-20 to 70 °C
Humidity range	90% R.H. n.c.

ELECTRICAL SPECIFICATIONS

Supply Voltage	12-30 Vdc
Power consumption	1 watt (AAS Version)
Supply fuse	500 mA
Signal fuse	63 mA
Analog output	4-20 mA
Load	0-300 ohms at 24Vdc
Cable Type	3 conductors cable (AAS Version)
Relay Contact Rating	Max. 1A - 100Vdc - 150 mΩ

PART NUMBER DESCRIPTION

Body	Description	Technology	Substance Code	Output Configuration Code
	II 2G EEx-d IIC T6	1 (Catalytic sensor)	01 (methane)	AAS Analog 4-20mA + RS485
RAS/AD	II 2G EEx-d IIC T6	2 (Infrared sensor)	02 (L.P.G.)	CCS Relay Contacts + RS485 (only RAS/AD body)
RAS/DY	II 2G EEx-d IIC T6	3 (Electrochemical cell)	27 (Hydrogen)	CAS Relay Contacts + 4-20mA + RS485 (only RAS/DY body)
	II 2G EEx-d IIC T6	4 (Chem. Abosrption sensor)	40 (Ammonia)	

Example: Part Number composition of gas detector in EEx-d execution with catalytic sensor for methane with analogue output 4-20 mA: Cod. **RAS/AD/101/AAS**

Example: Part Number composition of gas detector in EEx-d execution with electrochemical cell for ammonia with display and relay contacts output: Cod. **RAS/DY/340/CAS**

Distributed by:

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Standard Catalytic Sensors
Gas Selection Table

Gas Name	Formula	Gas Code	Standard Range	LEL %v/v
Ammonia	NH3	40	0-100%LEL	15
Butane	C4H10	05	0-100%LEL	1,5
G.P.L.	mix.	02	0-100%LEL	
Gasoline vapors	mix.	10	0-100%LEL	
General Explosive	**HC**	**00**	**0-100%LEL**	
Heptane	C7H16	42	0-100%LEL	1,1
Hydrogen	H2	27	0-100%LEL	4
Methane	**CH4**	**01**	**0-100%LEL**	**5**
Pentane	C5H12	03	0-100%LEL	1,4
Propane	CH3CH2CH3	04	0-100%LEL	2

MOS Semiconductor Sensors
Gas Selection Table

Gas Name	Formula	Gas Code	Standard Range	LEL %v/v	Note
Ammonia	NH3	40	0-100ppm	15	Low Cross Sensitivity to CH4, CO, H2
Carbon Dioxide	CO2	79	0-10.000ppm	1,5	
Carbon Monoxide	CO	20	0-400ppm		
Ethanole	C2H5OH	106	0-1.000ppm		
Flammable gas	HC	00	0-10.000ppm		
Hydrogen	H2	27	0-1.000ppm	4	
Toluene	C7H8	47	0-1.000ppm	1,1	

High Quality Catalytic Sensors
Gas Selection Table

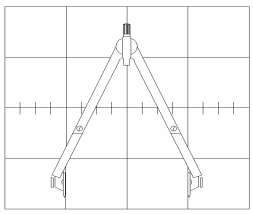
Gas Name	Formula	Gas Code	Standard Range	LEL %v/v
Acetaldehyde	CH3CHO	11	0-100%LEL	4
Acetic Acid	CH3COOH	12	0-100%LEL	4
Acetic Anhydride	(CH3CO)2O	14	0-100%LEL	2
Acetone	(CH3)2CHO	13	0-100%LEL	2,15
Acetonitrile	C2H3N	06	0-100%LEL	3
Acetylene	C2H2	15	0-100%LEL	1,5
Ammonia	NH3	41	0-100%LEL	15
Aniline	C6H5NH2	18	0-100%LEL	1,2
Benzene	C6H6	07	0-100%LEL	1,2
Butane	C4H10	05	0-100%LEL	1,5
Butyl Acetate	C6H12O6	16	0-100%LEL	1,3
Carbon Disulphide	CS2	52	0-100%LEL	0,6
Carbon Monoxide	CO	19	0-100%LEL	10,9
Carbonyl sulphide	COS	17	0-100%LEL	6,5
Chlorobenzene	C6H5Cl	108	0-100%LEL	1,3
Cis-but2ene	C4H8	28	0-100%LEL	1,6
Cyanogen	(CN)2	54	0-100%LEL	6
Cyclohexane	CH2 (CH2)4 CH2	30	0-100%LEL	1,2
Cyclopropane	CH2 CH2 CH2	31	0-100%LEL	2,4
Decane	C10H22	55	0-100%LEL	0,7
Diethyl Ether	(C2 H5)2 O	33	0-100%LEL	1,7
Diiso-Propyl Ether	C6H14O	21	0-100%LEL	1
Dimethyl Ether	C2H6O	71	0-100%LEL	2,2
Dimethylamine	(CH3)2 HN	34	0-100%LEL	2,8
Dimethylbutane	(CH3)3CCH2CH3	25	0-100%LEL	1,1
Dimethylhydrazine	(CH3)2NNH2	43	0-100%LEL	2,4
Dimethylpentane	C7H16	44	0-100%LEL	1,2
Dimethylsulphide	(CH3)4C	59	0-100%LEL	0,7
Ethane	C2H6	117	0-100%LEL	2,5
Ethyl Acetate	C4H8O2	45	0-100%LEL	2,2
Ethyl Alcohol	C2H5OH	46	0-100%LEL	3,1
Ethyl Benzene	C2H5C6H5	37	0-100%LEL	1
Ethyl Brumide	C2H5Br	48	0-100%LEL	6,7
Ethyl Chloride	C2H5Cl	49	0-100%LEL	3,6
Ethyl Formate	C3H6O2	110	0-100%LEL	2,7
Ethyl Methyl Ether	C3H8O	53	0-100%LEL	2
Ethylamine	C2H7N	62	0-100%LEL	2,68
Ethylcyclopentane	C7H14	109	0-100%LEL	1,05
Ethylene	CH2=CH2	38	0-100%LEL	2,3
Ethylene Dichloride	C2H4Cl2	50	0-100%LEL	7,3
Ethylene Oxide	CH2=CH2 O	39	0-100%LEL	2,6
Ethylmercaptan	C2H6S	111	0-100%LEL	2,8
Gasoline vapors	mix.	10	0-100%LEL	
General Explosive	**HC**	**00**	**0-100%LEL**	
Heptane - mixed isomers	C7H16	42	0-100%LEL	1,1
Hexane - mixed isomers	C6H14	57	0-100%LEL	1
Hydrazine	H4N2	66	0-100%LEL	4,7
Hydrogen	H2	27	0-100%LEL	4
Hydrogen cyanide	HCN	67	0-100%LEL	5,4
Hydrogen Sulphide	H2S	56	0-100%LEL	4
Iso-Butane	C4H10	24	0-100%LEL	1,3

Gas Name	Formula	Gas Code	Standard Range	LEL %v/v
Iso-Butyl Alcohol	C4H10 O	32	0-100%LEL	2
Isobutylene	C4H8	58	0-100%LEL	1,8
Iso-Pentane	C5H12	72	0-100%LEL	1,4
Iso-Propyl Alcohol	C3H7OH	76	0-100%LEL	2
L.P.G.	mix.	02	0-100%LEL	
Methane	**CH4**	**01**	**0-100%LEL**	**4,4**
Methyl Chloride	CH3Cl	116	0-100%LEL	7,6
Methyl Acetate	C3H6O2	68	0-100%LEL	3,2
Methyl Alcohol	CH3OH	08	0-100%LEL	5,5
Methyl Bromide	CH3BR	114	0-100%LEL	10
Methyl Ethyl Ketone	C2H5COCH3	22	0-100%LEL	1,8
Methyl Formate	C2H4O2	73	0-100%LEL	5
Methyl Hexane	C7H16	84	0-100%LEL	1,2
Methyl Mercamptan	CH3SH	74	0-100%LEL	3,9
Methyl Propyl Ketone	C5H10O	88	0-100%LEL	1,6
Methylamine	CH5N	112	0-100%LEL	4,2
Methylcyclohexane	C7H14	113	0-100%LEL	1,15
Methylene Chloride	CH2Cl2	83	0-100%LEL	15,5
Methylhydrazine	CH6N2	86	0-100%LEL	2,5
Methylpentane	C6H14	87	0-100%LEL	1,1
Methylpropionate	C4H8O2	75	0-100%LEL	2,5
M-Xylene	C2H9	89	0-100%LEL	1,1
N-Butane	C4H10	91	0-100%LEL	1,4
N-Butyl Alcohol	CH3(CH2)2 CH2OH	09	0-100%LEL	1,4
N-Butyric Acid	C4H8O2	51	0-100%LEL	2
Neo-Pentane	C5H12	90	0-100%LEL	1,4
Nitromethane	CH3NO2	77	0-100%LEL	7,3
N-Nonane	C9H20	78	0-100%LEL	0,7
N-Octane	C8H18	118	0-100%LEL	0,8
N-Propyl Alcohol	C3H8O	92	0-100%LEL	2,2
N-Propyl Chloride	C3H7Cl	93	0-100%LEL	2,4
N-Propylamine	C3H9N	115	0-100%LEL	2
O-Xylene	C8H10	94	0-100%LEL	1
Pentane - mixed isomers	C5H12	03	0-100%LEL	1,4
Propane	CH3CH2CH3	04	0-100%LEL	1,7
Propene	C3H6	95	0-100%LEL	2
Propylene Oxide	C3H6O	96	0-100%LEL	2,1
Propyne	C3H4	85	0-100%LEL	1,7
P-Xylene	C8H10	97	0-100%LEL	1,1
Styrene Monomer	C6H5	98	0-100%LEL	1,1
Tert-Butyl Alcohol	C4H10 O	35	0-100%LEL	2,4
Tetrahydrofuran	C4H8O	99	0-100%LEL	1,5
Toluene	C6H5CH3	47	0-100%LEL	1,1
Trans-Butene-2	C4H8	29	0-100%LEL	1,8
Triethylamine	(CH3CH2)3N	36	0-100%LEL	1,2
Trimethylamine	C3H9N	100	0-100%LEL	2
Trimethylbutane	C7H16O2	101	0-100%LEL	1,2
Vinyl Chloride	CH2=CHCL	26	0-100%LEL	3,6
1,2-Propylene Oxide	C6H6O	104	0-100%LEL	2,1
1,3-Butadiene	C4H6	23	0-100%LEL	1,4
1,4-Dioxane	C4H8O2	60	0-100%LEL	1,9
1,4-Hexadiene	C6H10	105	0-100%LEL	2
1-Butene	C4H8	102	0-100%LEL	1,6
1-Pentene	C5H10	103	0-100%LEL	1,4

Infrared sensors
Gas Selection Table

Gas Name	IR Ref.	Gas Code	Standard Range	LEL %v/v
Butane	HC	05	0-2% vol.	1,5
Ethane	HC	117	0-3% vol.	2,5
Ethanol	HC	106	0-5% vol.	
Ethylene	HC	38	0-3% vol.	2,3
Ethylene Oxide	HC	39	0-3% vol.	2,6
Hexane	HC	57	0-1% vol.	1
Methane	**HC**	**01**	**0-5% vol.**	**4,4**
Methane	**HC**	**01**	**0-100% vol.**	**4,4**
Methyl Bromide	HC	114	0-25,000 ppm	10
Pentane	HC	03	0-2% vol.	1,4
Propane	HC	04	0-100% vol.	1,7
Propylene	HC	107	0-2% vol.	2,1

Gas Name	IR Ref.	Gas Code	Standard Range	LEL %v/v	Resolution
Carbon Dioxide	CO2	79	0-500ppm		10 ppm from 0 to 250 ppm, then 20 ppm up to full scale
Carbon Dioxide	CO2	79	0-1000ppm		20 ppm from 0 to 500 ppm, then 40 ppm up to full scale
Carbon Dioxide	CO2	79	0-2000ppm		50 ppm from 0 to 1000 ppm, then 100 ppm up to full scale
Carbon Dioxide	CO2	79	0-5000ppm		50 ppm from 0 to 2500 ppm, then 100 ppm up to full scale
Carbon Dioxide	CO2	79	0-10.000ppm		100 ppm from 0 to 5000 ppm, then 200 ppm up to full scale
Carbon Dioxide	CO2	79	0-2% volume		0,025% vol from 0 to 1% vol, then 0,05% vol up to full scale
Carbon Dioxide	CO2	79	0-5% volume		0,025% vol from 0 to 2,5% vol, then 0,05% vol up to full scale
Carbon Dioxide	HCO2	79	0-10% volume		0,025% vol from 0 to 1% vol, then 0,05% vol up to full scale
Carbon Dioxide	HCO2	79	0-20% volume		0,05% vol from 0 to 1% vol, then 0,05% vol up to full scale
Carbon Dioxide	HCO2	79	0-30% volume		0,025% vol from 0 to 1% vol, then 0,05% vol up to full scale
Carbon Dioxide	HCO2	79	0-60% volume		0,025% vol from 0 to 1% vol, then 0,05% vol up to full scale
Carbon Dioxide	HCO2	79	0-100% volume		0,025% vol from 0 to 1% vol, then 0,05% vol up to full scale



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