

# TVOC

## Fixed gas detector for Volatile Organic Compounds (VOC)



### INTRODUCTION

**TVOC** is a fixed photoionisation detector (PID) for the continuous measurement of total volatile organic compounds (VOCs). **TVOC** accurately measures over three different detection ranges from just one instrument.

**TVOC** has a variable duty cycle set to 1 minute as standard. The user can adjust this between 5 seconds and 5 minutes.

**TVOC** utilises a diffusive sample technique resulting in less contamination issues compared to pumped systems, reducing lamp cleaning and servicing requirements. The 4-20 mA analogue output enables **TVOC** to be integrated into a DCS control system to give warning or control of high VOC levels in the working environment.

ATEX approvals enable a 3 wire **TVOC** system to be used in Zone 2 hazardous areas, without safety barriers. ATEX and IECEx approvals allow **TVOC** to be used in Zone 1 hazardous areas, with safety barriers.

Continuous detection of volatile organic compounds (VOCs) with multiple range from just one instrument.

#### Best available photoionisation (PID) detection

- 10.6 eV lamp for VOCs with an IP power < 10.6 eV
- Range: 0 to 10, 0 to 100 or 0 to 1000 ppm from just one instrument
- In-built humidity resistance with no need to compensate
- Anti-contamination design for extended field operation

#### Safety

- Accurate results over all environmental conditions
- Rugged and robust design with stands harsh environments
- Large LCD display for clear readings
- ATEX and IECEx approved

#### Ease of use

- Simple to use - minimal training required
- Easy access PID sensor for fast, simple servicing
- Simple calibration procedure

### TECHNICAL FEATURES

**Sensor (PID):** 10.6eV lamp with Ion Science patented Fence Electrode Technology

#### Hazardous area safety approvals:

ATEX: II 3 G Ex nA IIC T4 (-40°C ≤ Ta ≤ 50°C)

ATEX / IECEx: II 2 G Ex nA IIC T4 (-20°C ≤ Ta ≤ 50°C)

**Ingress protection rating:** Designed to IP65. Dependent on cable glands fitted sensor to IP53

**Power:** 5-28VDC Max 65 mA

**Output:** 4-20 mA requires a 8-35VDC power supply

For IS requirements 8-30 VDC power supply

**Range:** 0 to 10 ppm, 0 to 100 ppm, 0 to 1000 ppm (user selectable)

**Sampling:** Diffusion (can be pumped if required using an adaptor)

**Display:** 7 segment, 4 digit LCD, 4 color LEDs

**Response:** Sensor - T90 < 5sec

**Calibration:** Magnetically accessed 100 ppm Isobutylene via calibration kit accessory

**Temperature:** Operating: -20 to 50° C Humidity: 0-95% RH (non-condensing)

**Weight:** Instrument: 1.4kg, Packed: 1.6kg

**Dimensions:** 188x126x78 mm

**Alarm levels:** 4-20 mA Selectable 2 mA & 3.5 mA options

**List of the detected gases**  
International denomination

GAS	FORMULA	CAS	IP (eV)	GAS	FORMULA	CAS	IP (eV)
Acetaldehyde	C2H4O	75-07-0	10,23	Chloroprene (-3)	C3H5Cl	107-05-1	10,05
Acetate de n-amyle	C7H14O2	628-63-7	9,90	Chlorotoluene	C7H7Cl	100-44-7	9,14
Acetone	C3H6O	67-64-1	9,69	Chlorotoluene. o-	C7H7Cl	95-49-8	8,83
Acroleine	C3H4O	107-02-8	10,22	Chlorotoluene. p-	C7H7Cl	108-41-8	8,69
Alcool Allylique	C3H6O	107-18-6	9,63	Chlorotrifluoroethylene	C2ClF3	79-38-9	9,81
Ammoniac	NH3	7664-41-7	10,18	Citral	C10H16O	5392-40-5	8,70
Amyl alcohol	C5H12O	71-41-0	10,00	Citronellol	C10H20O	26489-01-0	8,50
Anhydride Acetique	C4H6O3	108-24-7	10,14	Cresol. m-	C7H8O	108-39-4	8,97
Aniline	C6H7N	62-53-3	7,70	Cresol. o-	C7H8O	95-48-7	8,97
Anisole	C7H8O	100-66-3	8,21	Cresol. p-	C7H8O	106-44-5	8,97
Arsine	AsH3	7784-42-1	9,89	Crotonaldehyde	C4H6O	4170-30-3	9,73
Asphalt. petroleum fumes		8052-42-4	9,00	Cumene	C9H12	98-82-8	8,75
Benzaldehyde	C7H6O	100-52-7	9,49	Cyclohexane	C6H12	110-82-7	9,86
Benzene	C6H6	71-43-2	9,24	Cyclohexanol	C6H12O	108-93-0	10,00
Benzonitrile	C7H5N	100-47-0	9,62	Cyclohexanone	C6H10O	108-94-1	9,40
Benzyl alcohol	C7H8O	100-51-6	8,26	Cyclohexene	C6H10	110-83-8	8,95
Benzyl formate	C8H8O2	104-57-4	9,32	Cyclohexylamine	C6H13N	108-91-8	8,37
Biphenyle	C12H10	92-52-4	8,23	Cyclopentane	C5H10	287-92-3	10,52
Bromobenzene	C6H5Br	108-86-1	8,98	Decane. n-	C10H22	124-18-5	9,65
Bromoethane	C2H5Br	74-96-4	10,29	Diacetone alcohol	C6H12O2	123-42-2	9,00
Bromoethyl methyl ether. 2-	C3H7OBr	6482-24-2	10,00	Dibenzoyl peroxide	C14H10O4	94-36-0	9,00
Bromopropane. 1-	C3H7Br	106-94-5	10,18	Dimethylacetamide N.N-	C4H9NO	127-19-5	8,81
Butadiene	C4H6	106-99-0	9,07	Dimethylamine	C2H7N	124-40-3	8,24
Butadiene diepoxide. 1.3-	C4H6O2	1464-53-5	10,00	Dimethylaminoethanol	C4H11NO	108-01-0	9,00
Butanol. 1-	C4H10O	71-36-3	10,04	Dimethylaniline. NN-	C8H11N	121-69-7	7,12
Buten-3-ol. 1-	C4H8O	598-32-3	9,20	Dimethylbutyl acetate	C8H16O2	108-84-9	7,74
Butene. 1-	C4H8	106-98-9	9,58	Dimethylethylamine. NN-	C4H11N	598-56-1	8,50
Butoxyethanol. 2-	C6H14O2	111-76-2	8,60	Dimethylformamide	C3H7NO	68-12-2	9,13
Butyl acrylate. n-	C7H12O2	141-32-2	8,60	Dimethylheptan-4-one. 2.6-	C9H18O	108-83-8	9,04
Butyl lactate	C7H14O3	138-22-7	9,80	Dimethylhydrazine. 1.1-	C2H8N2	57-14-7	8,05
Butyl mercaptan	C4H10S	109-79-5	9,15	Dinitrobenzene. m-	C6H4N2O4	99-65-0	10,43
Butylamine. 2-	C4H11N	513-49-5	8,60	Dinitrobenzene. p-	C6H4N2O4	100-25-4	10,50
Butylamine. n-	C4H11N	109-73-9	8,71	Dinonyl phthalate	C26H42O4	84-76-4	9,19
Camphene	C10H16	565-00-4	8,10	Dioxane 1.2-	C4H8O2	5703-46-8	9,20
Carbon disulfide	CS2	75-15-0	10,08	Dioxane 1.4-	C4H8O2	123-91-1	9,13
Carbon tetrabromide	CBR4	558-13-4	10,31	Dipentene	C10H16	138-86-3	8,60
Carvone. R-	C10H14O	6485-40-1	9,10	Diphenyl ether	C12H10O	101-84-8	8,09
Chlorine dioxide	ClO2	10049-04-4	10,36	Disulfur dichloride	S2Cl2	10025-67-9	10,00
Chloro-1.3-butadiene. 2-	C4H5Cl	126-99-8	8,79	Di-tert-butyl-p-cresol	C11H16O	2409-55-4	8,30
Chlorobenzene	C6H5Cl	108-90-7	9,07	Divinylbenzene	C10H10	1321-74-0	8,20
Chloroethyl methyl ether. 2-	C3H7ClO	627-42-9	9,00	Dodecanol	C12H26O	112-53-8	9,80



GAS	FORMULA	CAS	IP (eV)	GAS	FORMULA	CAS	IP (eV)
Epichlorohydrin	C3H5ClO	106-89-8	10,20	Iodomethane	CH3I	74-88-4	9,54
Epoxypropyl isopropyl ether. 2.3-	C6H12O2	4016-14-2	10,00	Isobutane	C4H10	75-28-5	10,57
Ethanol	C2H6O	64-17-5	10,43	Isobutanol	C4H10O	78-83-1	10,12
Ethanolamine	C2H7NO	141-43-5	10,47	Isobutyl acrylate	C7H12O2	106-63-8	9,50
Ethoxy-2-propanol. 1-	C5H10O2	1569-02-4	9,60	Isobutylene	C4H8	115-11-7	9,24
Ethoxyethyl acetate. 2-	C6H12O3	111-15-9	10,00	Isobutyraldehyde	C4H8O	78-84-2	9,00
Ethyl (S)-(-)-lactate	C5H10O3	97-64-3	10,00	Isononanol	C9H20O	2452-97-9	9,80
Ethyl acetate	C4H8O2	141-78-6	10,01	Isooctane	C8H18	565-75-3	9,86
Ethyl acrylate	C5H8O2	140-88-5	10,30	Isooctanol	C8H18O	26952-21-6	9,80
Ethyl amine	C2H7N	75-04-7	8,86	Isopentane	C5H12	78-78-4	10,32
Ethyl benzene	C8H10	100-41-4	8,76	Isophorone	C9H14O	78-59-1	9,07
Ethyl butyrate	C6H12O2	105-54-4	9,90	Isoprene	C5H8	78-79-5	8,85
Ethyl cyanoacrylate	C6H7O2N	7085-85-0	10,00	Isopropanol	C3H8O	67-63-0	10,17
Ethyl decanoate	C12H24O2	110-38-3	9,60	Isopropyl acetate	C5H10O2	108-21-4	9,99
Ethyl hexanoate	C8H16O2	123-66-0	9,75	Isopropyl chloroformate	C4H7O2Cl	108-23-6	10,20
Ethyl hexanol. 2-	C8H18O	105-76-7	9,80	Jet Fuel JP-4			9,00
Ethyl hexyl acrylate. 2-	C11H20O2	103-11-7	9,00	Jet Fuel JP-5			9,00
Ethyl mercaptan	C2H6S	75-08-1	9,29	Jet Fuel JP-8			9,00
Ethyl octanoate	C10H20O2	106-32-1	9,70	Kerosene		8008-20-6	8,00
Ethylene	C2H4	74-85-1	10,51	Ketene	C2H2O	463-51-4	9,62
Ferrocene	C10H10Fe	102-54-5	6,88	Maleic anhydride	C4H2O3	108-31-6	9,90
Formamide	CH3ON	75-12-7	10,20	Mercaptoacetic acid	C2H4O2S	68-11-1	9,80
Furfural	C5H4O2	98-01-1	9,21	Mesitylene	C9H12	108-67-8	8,41
Furfuryl alcohol	C5H6O2	98-00-0	9,90	Methacrylic acid	C4H6O2	79-41-4	10,15
Gasoline vapors		8006-61-9	9,90	Methacrylonitrile	C4H5N	126-98-7	10,34
Gasoline vapors 92 octane		8006-61-9	9,90	Methoxyethanol. 2-	C3H8O2	109-86-4	9,60
Glutaraldehyde	C5H8O2	111-30-8	9,60	Methoxyethoxyethanol. 2-	C5H12O3	111-77-3	10,00
Heptan-2-one	C7H14O	110-43-0	9,33	Methoxymethylethoxy-2-propanol	C7H16O3	34590-94-8	9,30
Heptan-3-one	C7H14O	106-35-4	9,02	Methoxypropan-2-ol	C4H10O2	107-98-2	9,40
Heptane n-	C7H16	142-82-5	9,92	Methoxypropyl acetate	C6H12O3	108-65-6	9,00
Hexamethyldisilazane. 1.1.1.3.3.3.-	C6H19NSi2	999-97-3	8,60	Methyl acetate	C3H6O2	79-20-9	10,27
Hexamethyldisiloxane.	C6H18OSi2	107-46-0	9,00	Methyl acrylate	C4H6O2	96-33-3	10,25
Hexan-2-one	C6H12O	591-78-6	9,34	Methyl bromide	CH3Br	74-83-9	10,54
Hexane n-	C6H14	110-54-3	10,13	Methyl cyanoacrylate	C5H5O2N	137-05-3	10,00
Hexene. 1-	C6H12	592-41-6	9,44	Methyl ethyl ketone	C4H8O	78-93-3	9,51
Hydrazine	H4N2	302-01-2	8,93	Methyl isobutyl ketone	C6H12O	108-10-1	9,30
Hydrogen peroxide	H2O2	7722-84-1	10,54	Methyl isothiocyanate	C2H3NS	556-61-6	9,25
Hydrogen sulfide	H2S	7783-06-4	10,46	Methyl mercaptan	CH4S	74-93-1	9,44
Hydroquinone	C6H6O2	123-31-9	7,94	Methyl methacrylate	C5H8O2	80-62-6	9,70
Hydroxypropyl acrylate 2-	C6H10O3	999-61-1	9,00	Methyl salicylate	C8H8O3	119-36-8	9,70
Iminodi(ethylamine) 2.2-	C4H13N3	111-40-0	9,00	Methyl sulfide	C2H6S	75-18-3	8,69
Iminodiethanol 2.2'-	C4H11NO2	111-42-2	9,00	Methyl t-butyl ether	C5H12O	1634-04-4	9,24
Indene	C9H8	95-13-6	8,81	Methyl-2-propen-1-ol. 2-	C4H8O	51-42-8	9,60
Iodine	I2	7553-56-2	9,31	Methyl-2-pyrrolidinone. N-	C5H9NO	872-50-4	9,17
Iodoform	CHI3	75-47-8	9,25	Methyl-4.6-dinitrophenol. 2-	C7H6N2O5	534-52-1	9,10

GAS	FORMULA	CAS	IP (eV)	GAS	FORMULA	CAS	IP (eV)
Methyl-5-hepten-2-one. 6-	C8H14O	110-93-0	9,40	Prop-2-yn-1-ol	C3H4O	107-19-7	9,00
Methylamine	CH5N	74-89-5	8,97	Propan-1-ol	C3H8O	71-23-8	10,20
Methylbutan-1-ol. 3-	C5H12O	123-51-3	9,80	Propene	C3H6	115-07-1	9,73
Methylcyclohexane	C7H14	108-87-2	9,85	Propionaldehyde	C3H6O	123-38-6	9,95
Methylcyclohexanol. 4-	C7H14O	589-91-3	9,80	Propionic acid	C3H6O2	79-09-4	10,24
Methylcyclohexanone 2-	C7H12O	583-60-8	9,20	Propyl acetate. n-	C5H10O2	109-60-4	10,04
Methylheptan-3-one. 5-	C8H16O	541-85-5	9,10	Propylene oxide	C3H6O	75-56-9	10,22
Methylhexan-2-one. 5-	C7H14O	110-12-3	9,28	Propyleneimine	C3H7N	75-55-8	9,00
Methylhydrazine	CH6N2	60-34-4	8,00	Pyridine	C5H5N	110-86-1	9,25
Methyl-N-2,4,6-tetranitroaniline. N-	C7H5N5O8	479-45-8	9,00	Pyridylamine 2-	C5H6N2	504-29-0	9,00
Methylpent-3-en-2-one. 4-	C6H10O	141-79-7	9,00	Styrene	C8H8	100-42-5	8,40
Methylpentan-2-ol. 4-	C6H14O	108-11-2	9,80	Terpinolene	C10H16	586-62-9	8,10
Methylpentane-2,4-diol. 2-	C6H14O2	107-41-5	9,00	Tert-butanol	C4H10O	75-65-0	9,80
Methylpropan-2-ol. 2-	C4H10O	75-65-0	9,70	Tetrabromoethane. 1.1.2.2-	C2H2Br4	79-27-6	10,00
Methylstyrene	C9H10	25013-15-4	8,20	Tetracarbonylnickel	NiC4O4	13463-39-3	8,28
Mineral oil		8042-47-5	9,00	Tetrachloroethylene	C2Cl4	127-18-4	9,33
Mineral spirits		64475-85-0	9,00	Tetrachloronaphthalenes. all isomers	C10H4Cl4	20020-02-4	8,50
Naphthalene	C10H8	91-20-3	8,14	Tetraethyl orthosilicate	C8H20O4Si	78-10-4	9,80
Nitric oxide	NO	10102-43-9	9,27	Tetrafluoroethylene	C2F4	116-14-3	10,12
Nitroaniline 4-	C6H6N2O2	100-01-6	8,85	Tetrahydrofuran	C4H8O	109-99-9	9,41
Nitrobenzene	C6H5NO2	98-95-3	9,92	Therminol		1336-36-3	9,00
Nitrogen trichloride	NC13	10025-85-1	10,22	Thiophenol	C6H5SH	108-98-5	8,32
Nonane. n-	C9H20	111-84-2	9,72	Toluene	C7H8	108-88-3	8,82
Norbornadiene. 2.5-	C7H8	121-46-0	8,00	Toluene-2,4-diisocyanate	C9H6N2O2	584-84-9	8,82
Octachloronaphthalene	C10Cl8	2234-13-1	9,00	Toluidine. o-	C7H9N	95-53-4	7,40
Octane. n-	C8H18	111-65-9	9,80	Tribromomethane	CHBr3	75-25-2	10,48
Octene. 1-	C8H16	111-66-0	9,43	Tributylamine	C12H27N	102-82-9	7,40
Oxyde de diglycidyle	C6H10O3	2238-07-5	9,60	Trichlorobenzene 1.2.4-	C6H3Cl3	120-82-1	9,04
Paraffins. normal		64771-72-8	10,00	Trichloroethylene	C2HCl3	79-01-6	9,45
Pentacarbonyl iron	FeC5O5	13463-40-6	9,00	Triethylamine	C6H15N	121-44-8	7,50
Pentan-2-one	C5H10O	107-87-9	9,38	Trimethylamine	C3H9N	53-50-3	7,82
Pentan-3-one	C5H10O	96-22-0	9,31	Trimethylbenzene mixtures	C9H12	25551-13-7	8,41
Pentandione. 2.4-	C5H8O2	123-54-6	8,85	Trimethylbenzene. 1.3.5-	C9H12	108-67-8	8,39
Pentane. n-	C5H12	109-66-0	10,35	Turpentine	C10H16	8006-64-2	8,00
Petroleum ether		8032-32-4	10,00	Undecane. n-	C11H24	1120-21-4	9,56
Phenol	C6H6O	108-95-2	8,51	Vinyl acetate	C4H6O2	108-05-2	9,19
Phenyl propene. 2-	C9H10	98-83-9	8,35	Vinyl bromide	C2H3Br	593-60-2	9,80
Phenyl-2,3-epoxypropyl ether	C9H10O2	122-60-1	8,60	Vinyl chloride	C2H3Cl	75-01-4	9,99
Phenylenediamine. p-	C6H8N2	106-50-3	6,89	Vinyl-2-pyrrolidinone. 1-	C6H9NO	88-12-0	9,00
Phosphine	PH3	7803-51-2	9,96	Xylene mixed isomers	C8H10	1330-20-7	8,56
Picoline. 3-	C6H7N	108-99-6	9,04	Xylene. m-	C8H10	108-38-3	8,56
Pinene. alpha	C10H16	80-56-8	8,07	Xylene. o-	C8H10	95-47-6	8,56
Pinene. beta	C10H16	127-91-3	8,10	Xylene. p-	C8H10	106-42-3	8,44
Piperidine	C5H11N	110-89-4	8,03	Xylidine. all	C8H11N	1300-73-8	7,50
Piperylene	C5H8	504-60-9	8,60				