

# T4

## Personal 4 gas monitor



## Crowcon Portable Gas Detection

Solutions to protect your workforce from flammable and toxic gasses utilising best in class technologies and decades of specialist experience

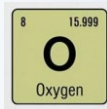
Our T4 gives compliance to customers who want the 4 most popular sensor options and data capability, in a rugged, simple to operate device



# The Standard 4 Gases



# The 4 gases



## **Oxygen:** Crucial for life!

Above the 19-23% safe zone can result in an increased fire risk. Below 19% can risk nausea, loss of consciousness and death.



## **Flammables:** Anything which in the correct concentration can be ignited, e.g. Methane.

T4 is Zone 1 certified so it can be used in areas where flammable gases might be present.



## **CO:** Odourless, colourless and with a similar density to air, carbon monoxide is the 'silent killer'

Present in any process involving incomplete combustion of carbon fuel, naturally present in coal mines, and also used in some chemical and steel production processes.

High levels can lead to breathlessness, chest pain, seizures or loss of consciousness.



## **H<sub>2</sub>S:** Hydrogen sulphide is known for its 'bad egg' odour.

Produced during decay of organic materials, during oil extraction and pretty much anywhere where sewage is being processed.

High levels can lead to collapse, respiratory paralysis, convulsions, loss of consciousness.



# Industry & Application

# Industries

## Steel

CO ( $H_2$  immune),  
 $O_2$  depletion,  
flammables



## Waste and water

$H_2S$ , low levels of  
 $O_2$ , flammables,  
(CO)

## Utilities

$O_2$  depletion,  $H_2S$ ,  
flammables, CO



## Oil and Gas

Flammables,  $H_2S$ ,  
 $O_2$  depletion

## Lease / construction

$O_2$  depletion,  $H_2S$ ,  
flammables, CO

# Application Showcase

## Utilities

The T4 is perfect for utilities companies looking for a large fleet of devices with data capability to guarantee compliance for their workforce.

## Refineries

The popular and most prevalent 4 gasses feature on T4 and it is also rugged and hardwearing and available with a 10 way charger making it perfect for refinery use especially during shutdowns and turnarounds

## Steel plants

T4 can be supplied with a hydrogen immune CO sensor which is a perfect fit for steel plant applications where parts of the process involve Hydrogen and a regular CO sensor would be unable to function correctly





# Overview

# Portables range overview

Market Price

- Single gas
- Disposable



Clip  
SGD



Gasman

- Single gas
- Rechargeable
- Many sensor options



T4

- Multi gas
- Standard 4



T3

- Multi gas
- Many Sensor Options



Gas-Pro

- 5 gas Multi gas
- Pump option
- Many Sensor Options



Gas-Pro TK

- Dual Range IR sensor Vol & %LEL
- Special Tank pre-entry mode



Detective+

- Temporary are monitor
- Loudest alarms
- Biggest battery
- Pumped option



# T4

## Personal 4-Gas Monitor



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T4 gives customers compliance by integrating innovative safety features and an intuitive, rugged design to provide advanced workforce safety for those working in harsh environments.

This portable multigas detector, which is exceptionally easy to use and service, protects against the four most prevalent gas hazards: carbon monoxide (CO), hydrogen sulphide (H<sub>2</sub>S), flammable gases (eg CH<sub>4</sub>) and oxygen (O<sub>2</sub>) depletion.



# Key Features



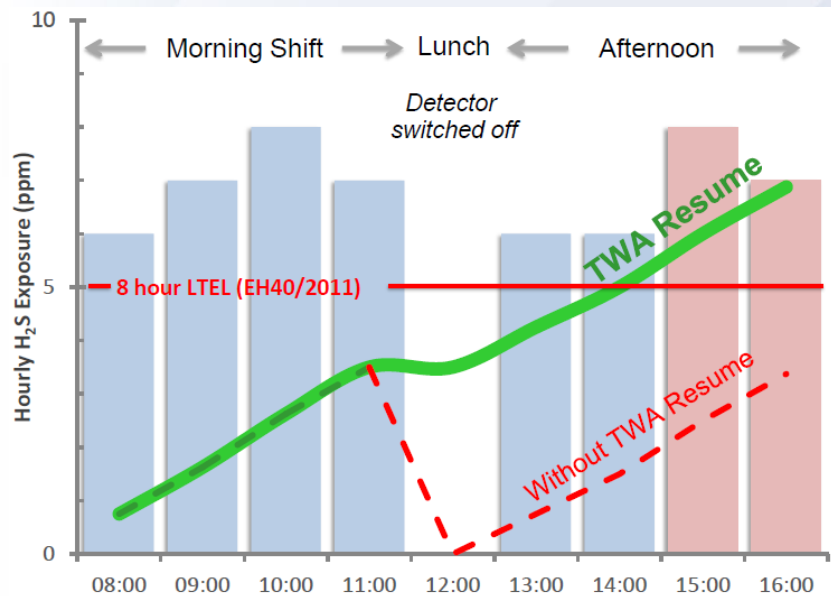
# Features



# TWA Resume

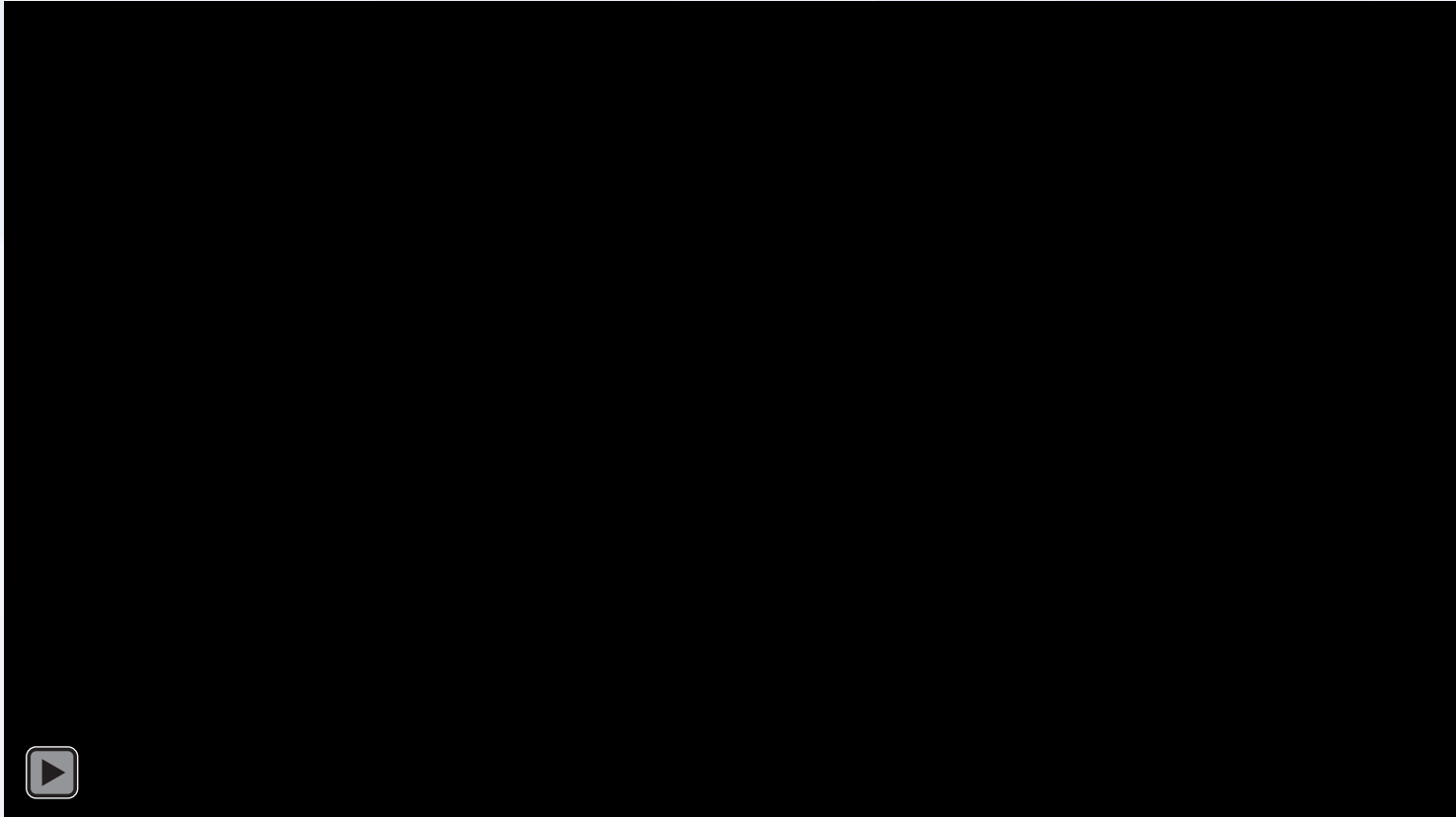
Regulations mandate acceptable exposure limits for both short term and long term time periods. It is employers responsibility to adhere to these guidelines and deliver compliance. Most portables track TWA's and alert when they are reached however turning off the portable (over a lunch break or while travelling to another site etc) resets the TWA timers. This leads to incorrect TWA tracking and non compliance to regulations

T4's Unique and patented TWA resume feature is the only way to accurately record TWA's even if the device is powered down mid shift



- After powering off a detector mid shift the option to resume shift is given when the detector is powered back on
- Resuming continues with the already accumulated shift TWA data
- The only way to accurately ensure TWA compliance
- TWA alarms are stored in the detector logs and can be easily transferred to our Crowcon Connect platform

# TWA Resume Explained



# TWA Resume Patent

(12) UK Patent Application			(19) GB	(11) 2534957	(13) A
			(43) Date of A Publication		10.08.2016
(21) Application No:	1514593.1		(51) INT CL: G01N 33/00 (2006.01)		
(22) Date of Filing:	17.08.2015		(56) Documents Cited: GB 2345971 A WO 2013/079534 A2 WO 2001/014873 A1 US 4297689 A US 4231249 A		
(30) Priority Data:			(58) Field of Search: INT CL G01N Other: WPI, EPODOC		
(31) 1501699	(32) 02.02.2015	(33) GB			
(71) Applicant(s): Crowcon Detection Instruments Ltd 172 Brook Drive, Milton Park, ABINGDON, OX14 4SD, United Kingdom					
(72) Inventor(s): Adrian Summerfield					
(74) Agent and/or Address for Service: Withers & Rogers LLP 4 More London Riverside, LONDON, SE1 2AU, United Kingdom					

TWA Resume is a patented technology only available on Crowcon devices

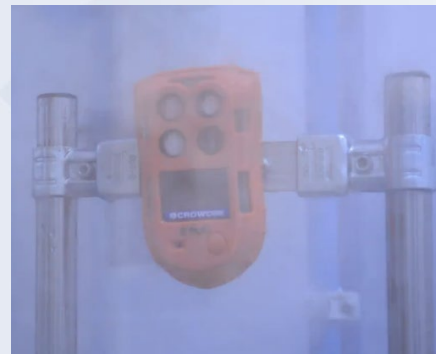
# Crowcon's most rugged portable yet

When you work in difficult harsh environments you need a device that isn't going to let you down. Its very easy to drop, bump, bang or scrape a portable gas detector when working in tough situations. If its not up to the task it will break, causing downtime while you arrange a replacement

T4 is designed to withstand impacts and the elements. It won't break meaning you can continue working without worry, even if it is accidentally dropped meaning more time on the job and less time back at stores or the repair centre



**Independently drop tested  
onto concrete from 4m**



**Water jet testing for IP65  
& IP67 rating**

# +ve Safety

When managing a fleet of instruments it can often be difficult to keep track of the compliance status of devices leading to instances of noncompliance and workers at risk

With T4 we have introduced +ve Safety a system which gives easy immediate warning of any compliance issues allowing you to take the necessary steps to maintain compliance and keep workers safe

## Illuminated **red** if:

- Battery is critically low
- Bump test is required
- Calibration is due
- T4 is in gas alarm
- T4 fault



## Illuminated **green**:

- T4 is compliant



# One button operation

Workers don't have the time and inclination to learn multiple complex operating systems and user interfaces. It also adds additional user training organization and facilitation requirements to fleet managers already busy workloads

T4 features simple and intuitive one button operation minimising training overheads and ensuring easy usability



## Single Button Operation

**Hold** to turn on

**Hold** to turn off

**Double press** to open menu

**Single press** to navigate menu/confirm action

**Double press** to select menu item

Easy to operate wearing gloves

Backlight activates whenever button pressed

# Display Flip

Gas detection is a vital safety feature in many industries. Staff need to be able to quickly and easily check the readings on their gas monitors, but many displays have a fixed orientation and are difficult to read when clipped to work ware

With display flip on T4 you can change the orientation of the display to whatever best fits with how and where the unit is mounted or clipped to workware. This improves the speed at which your staff can interpret the readings or alerts on the display





# Clip-on Filter plate

In dirty and dusty work environments filters are essential to keep the sensors in your staffs portables functioning properly. Most portables have internal filters which mean downtime and cost due to invasive servicing when its time to change the filters

With T4's clip on filter plate you can change quickly and non-intrusively change the filters. This reduces downtime and saves on servicing costs



# T4 Quick View

When you need to check top level device information like serial numbers, alarm level settings or when the next calibration is due - this can be a laborious and time intensive process involving turning on the unit and waiting for a lengthy start up process to complete, or even connection to a PC


With quick view on T4 you can access all this information instantly with a single button press even without turning on the unit, saving you time and improving efficiency



**Single press the power button** when T4 is powered down to activate Quick View

The display cycles through:

- Serial number
- Next Calibration due date
- Next Bump Test due date
- Alarm 1 level settings
- Alarm 2 level settings

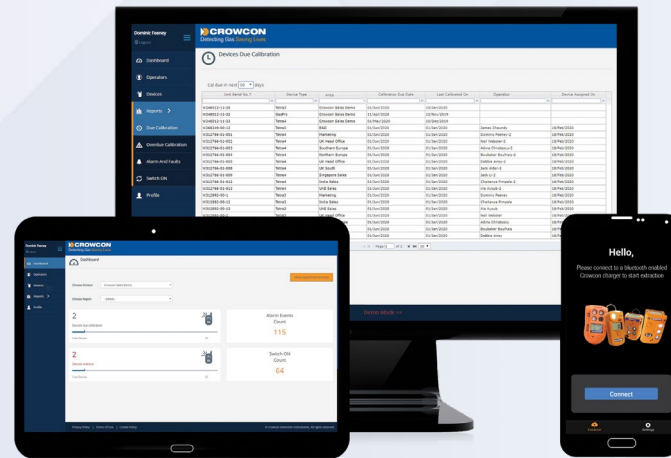
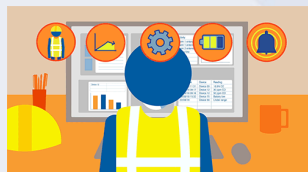
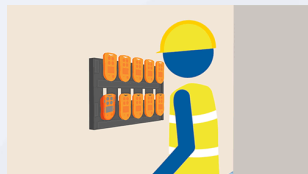
The  symbol indicates you are in quick view mode



# Data Functionality

# Crowcon Connect

- T4 is compatible with Crowcon Connect, our new Gas safety and compliance insight solution



Crowcon Connect gives the visibility and insights you need from your detectors to ensure **compliance**, improve **efficiency** and raise levels of **safety**



# Sensor option overview

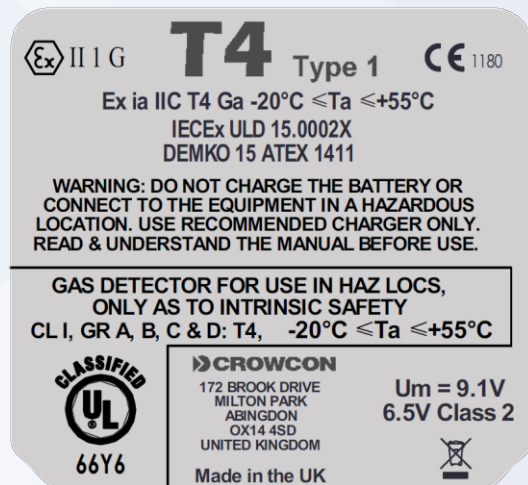
# Sensor Compatibility Overview

	Flam	H2S	CO	O2	SO2	NH3	CO2	Cl2	NO2	NO	O3	CO-H2S	ClO2	H2	HF	F2	PH3	HCN	HCL	COCL2	C2H4O	IR CO2	PID
Clip SGD		X	X	X																			
Gasman	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X		X	X	X	
T4	X	X	X	X																			
T3	X	X	X	X	X	X	X				X	X										X	
Gas Pro	X	X	X	X	X	X	X	X	X	X	X	X	X										
Gas pro IR	X	X	X	X	X	X	X	X	X	X	X	X	X									X	
Gas pro PID	X	X	X	X	X	X	X	X	X	X	X	X	X										X
Gas Pro TK		X	X	X								X										X	
Detective	X	X	X	X	X	X	X	X	X				X	X	X		X	X			X	X	



# Certification

# Certification

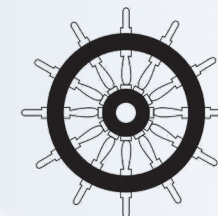


GAS	
Zone 0	Explosive Gases present continuously
Zone 1	Explosive Gases likely to occur in normal service
Zone 2	Explosive Gases unlikely to occur and would be infrequent and short term



Ga means T4 is certified for operation in **Zone 1 and 2**

ATEX	II 1 G Ex ia IIC T4 Ga T <sub>amb</sub> -20°C to +55°C
IECEX	Ex ia IIC T4 Ga T <sub>amb</sub> -20°C to +55°C
UL	Gas detector use in hazardous locations Class 1 Div 1 groups A,B,C,D only as to intrinsic safety
INMETRO	Ex ia IIC T4 Ga T <sub>amb</sub> -20°C to +55°C



B-7061  
**MED Certified**





# Specification

# Full Specification

Size		135 x 80 x 35 mm (5.3 x 3.1 x 1.4 in)
Weight		282 g (9.9 oz)
Durability		Drop tested 4 m onto concrete
Alarms	Audible	95 dB
	Vibrating	Integrated
	Visible	Bright red/blue LEDs
Display		Front mounted backlit, 180° flip for easy viewing while worn
Logging	Data	130 h data @ 10 s intervals
	Events	3,500
Battery	Rechargeable Li-ion	18 hour typical runtime, 5.5 hour recharge
Environment	Operating Temperature	-20 to +55°C <sup>3</sup> (-4°F to +131°F)
	Humidity	10-95% RH @ 40°C non-condensing
	Ingress protection	Independently tested to IP65 and IP67

# Full Specification

Compliance		EMC Directive 2004/108/EC ATEX Directive 94/9/EC
Approvals	ATEX	Ex II 1 G Ex ia IIC T4 Ga T <sub>amb</sub> -20°C to +55°C
	IECEx	Ex ia IIC T4 Ga T <sub>amb</sub> -20°C to +55°C
	UL	Gas detector use in hazardous locations Class 1 Div 1 groups A,B,C,D only as to intrinsic safety
	INMETRO	Ex ia IIC T4 Ga T <sub>amb</sub> -20°C to +55°C
Accessories included with T4		Integrated alligator clip and tethering loop Calibration plate
Accessories available separately	Charging	Single unit cradle charger 10 unit cradle charger Vehicle charger
	Sensor protection	Clip on dust filter plate
	Automated testing	I-Test automated bump and calibration station
	Interface	USB communications lead

# Sensor Specification

	Range	Resolution	Pre-set alarm
O <sub>2</sub>	0 – 30.0%	0.1%	19/23.5%
Flammable	0 – 100% LEL	1%	10% LEL
H <sub>2</sub> S	0 – 100 ppm	1 ppm	5 ppm
CO	0 – 1,000 ppm	1 ppm	30 ppm





# Accessories

# T4 Accessories



## External Dust Filters

Additional sensor protection from contamination.  
For very dusty environments.



## Cradle Charger

Includes multi region power supply



## 10 Way Charger

Charge and store up to 10 units. Requires only one power outlet



## Vehicle Charger

Charge and store securely during transit



## Portables Pro + USB cable



## I-Test + I-Test Manager

Quick and easy bump testing and calibration with minimal training



## Bump / calibration plate

For applying test gas to T4

## Quick and easy bump testing and calibration with minimal training

- Full calibration & bump testing
- Data management
- Ability to update unit settings
- Charging of units
- Battery or mains powered
- Software to support (I-Test Manager)
- Stores and updates bump/calibration records.
- No computer required for calibration/bump test
- Entirely self contained
- Gas cylinder management





# Summary



# Key attributes and decision points



## Maximum number of gases detected

Maximum number of target gas types the product can detect.



## Minimum product weight

This represents the minimum weight of the product. Check the product specifications for variations depending on sensor type and additional built in functionality, such as pumps.



## Standard battery life

The standard operating life of the unit based on a full charge. If charged for a shorter time period the operating time may be reduced. Check product specifications for further details



## Single use

Non rechargeable, maintenance free products with up to 2 years life (dependent on alarm hours). Products may have replaceable batteries and can be re-used. See product specifications for details.



## Ingress protection level

The IP rating system provides a means of classifying the degrees of protection from dust and water afforded by electrical equipment and enclosures (BS EN60529).

**IP65** – Totally protected against dust ingress and low pressure water jets from any direction.

**IP66** – Totally protected against dust ingress and high pressure water jets from any direction

**IP67** – Totally protected against dust ingress and short periods of immersion in water.



## Pre-entry check function

An automated pre-entry check which guides users through the three specific functions of any pre-entry check (sample, review and purge) for a confined space application.



## Optional internal sampling pump

This product can have an optional electric pump built in for sampling functionality.

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“Our T4 gives compliance to customers who want the 4 most popular sensor options and data capability, in a rugged, simple to operate device”

### Features

TWA resume function	Unique to T4, this innovative feature ensures toxic gas exposure is calculated accurately over an entire shift, even if T4 is switched off for a break or during travel to another site.
18 hour battery life	Safely work multiple or longer shifts between charges, covered by the 18 hour battery life.
Backlit display	Large, clear display with backlight and option to flip the screen 180° for easy viewing whilst worn.
Rugged design	With a thick anti-shock rubber casing and drop tested to 4 metres on concrete, T4 provides dependable operation under the most demanding use.
Water & dust resistant to IP65 & IP67	Provides protection in the harshest environments.
Dedicated sensors	One sensor for every gas ensures effective, fast and reliable detection.
Positive safety indicator	A simple 'traffic light' status indicator which, at a glance, provides visual assurance of operational and compliance status to both users and supervisors. Green light - Working safely Red light - Attention required
Intrinsically safe	ATEX approved and UL Class 1 Div 1 for safe operation in a wide range of hazardous environments.
Multiple alarms	Audible 95dB alarm, bright red/blue LED's and vibrating alerts provide effective warning to gas hazards.
Easy operation	Large single button and intuitive menu system minimise training and allow easy operation whilst wearing gloves.

Available gases:

Flam

O<sub>2</sub>

CO

H<sub>2</sub>S



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