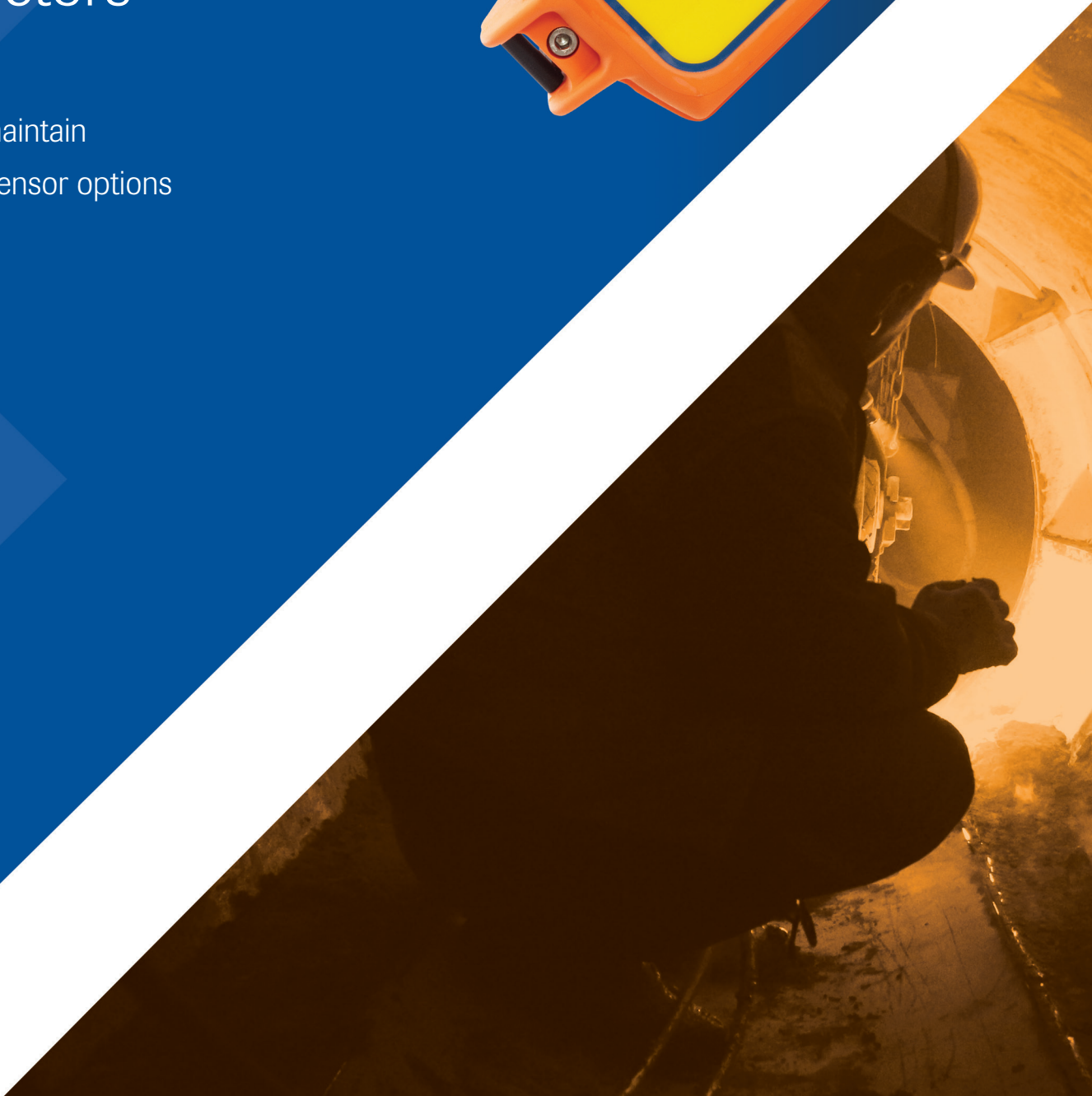# CROWCON
Detecting Gas Saving Lives

Triple Plus+ Series

Portable Gas Detectors

Durable

Easy to maintain

Flexible sensor options

Triple Plus+ and Triple Plus+ IR

Oxygen, Toxic and Flammable Gases Detector

Triple Plus+ is a multigas detector providing triple protection, against toxic, oxygen and flammable gas hazards.

Intrinsically safe, the Triple Plus+ provides enhanced capabilities for safety and detector fleet managers including selection of flammable gas correction factors (so one unit can be used in several locations across a site) and annotation of the data file with user names and site names selected from pre-configured files in the unit.

Clear and unambiguous

Piercing 85dB audible alarm	
Vivid LED alarms with top visibility	Ensures clear warning and Gives you confidence in the operating status of the Triple Plus+ unit
Confidence blip, low battery and TWA warnings	
Timed data logging with 100-hour capacity	

Simple to customise

Wide range of electrochemical oxygen and toxic gas sensors	
Available for diffusion, manual aspiration or pumped sampling	Allows you to create your optimum 4 gas Triple Plus+ with site and user names
Interchangeable sensor modules Comprehensive data logging	
Wide array of sensors available	Can be tailored to fit the requirements of any job scenario with a gas risk

Durable

Triax™ casing will not crack or shatter when dropped	
Unique internal design will resist the harshest treatment	System integrity and operation assured
Full bouyancy	Makes recovery from water possible

Easy to maintain

Simple WindowsTM Software interface	Users menus allow calibration with or without connecting to a PC
QuickCal for rapid calibration	

IR option

No poisoning effects	Works well where catalytic pellistors would perform poorly
Long life sensor and no burnout	Reduced cost of ownership
% vol. measurement for purging applications	Offers flexibility
% LEL measurement in air or inert backgrounds	
Single or dual range measurement	
IR CO_2 detection, 0–5%	

Gases and ranges

Gas	Range	Typical alarms
Triple Plus+ & Triple Plus+ IR		
Flammable gas	0-100% LEL	20% LEL
Oxygen (O_2)	0-25% vol.	19% & 23.5%
Hydrogen sulphide (H_2S)	0-50 ppm	5 ppm
Carbon monoxide (CO)	0-500 ppm	30 ppm
Sulphur dioxide (SO_2)	0-10 ppm	1 ppm
Chlorine (Cl_2)	0-5 ppm	0.5 ppm
Nitrogen dioxide (NO_2)	0-10 ppm	1 ppm
Phosphine (PH_3)*	0-2 ppm	0.1 ppm
Ammonia (HN_3)	0-50 ppm	25 ppm
Hydrogen (non-flammable levels)	0-2000 ppm	n/a
Hydrogen cyanide (HCN)	0-25 ppm	10 ppm
Hydrogen chloride (HCl)*/+	0-10 ppm	1 ppm
Hydrogen (H_2) (Electrochemical)	0-100% LEL	20% LEL
Methane (CH_4)	0-100% vol.	n/a
Flourine (F_2)*	0-10 ppm	1 ppm
Hydrogen flouride (HF)*/+	0-10 ppm	2 ppm
Ethylene oxide (ETO)*	0-10 ppm	5 ppm
Chlorine dioxide (CLO_2)*/+	0-1 ppm	0.1 ppm
Nitric oxide (NO)*	0-100 ppm	25 ppm
Triple Plus+ IR		
Carbon dioxide (CO_2)	0-5%	0.5/ 1.5%

Required ranges and alarms may vary by country and application and these can be configured as required.

* Unpumped units only

+ Reactive gas, care required during sampling, contact Crowcon for details.

Specification

Size	118 x 200 x 73mm (4.65 x 7.8 x 2.9ins)
Weight	880g (31oz)
Approval codes	Europe: ATEX II 2G: Ex ib d IIC T4 Gb (Ta = -20°C to +50°C)
	North America: Class I Division 1, Groups A, B, C and D
	IECEx Ex ib d IIC T4, (Ta = -20°C to +50°C) SIR06.0084X
Safety standards	Europe: EN50014, EN50020, EN50018-2, EN50270, EN50082-2
	North America: UL 913, CSA 22.2 No.157 (SFA3009 Triple Plus+)
Ingress protection	IP65
Typical response times	Methane 20s (Triple Plus+) IR 20s (Triple Plus+IR), Oxygen 10s, typical Toxic Gas 20s
Expected sensor life	Flammable: 5 years (Triple Plus+), IR: 5 years (Triple Plus+ IR) Toxic: 3 years (typical), Oxygen: 2 years
Audible alarms	Piercing, rapid intermittent, piezo-electric tone
	85 dB at 1 m
	Confidence blip (selectable)
	Distinctive double blip for low battery with user accept
Visible alarms	Gas hazard: vivid flashing red LED
	Instrument is working: slow flashing green LED
	Low battery: distinctive double flash of green LED
Display	2 lines of 24 characters, dot matrix high contrast
	LCD with back light operating for 30 minutes
	Values and units for up to 4 gases displayed simultaneously at current, TWA or peak levels
	Low battery, pump failure, real time and elapsed time, calibration and configuration data also displayed
Data logging	Adjustable sample rate,
	100 hours at 1-minute sample rate (maximum 6000 data points per channel),
	logging of events, user and site
LIBRA	Li-Ion rechargeable battery pack
	Battery Life: standard instrument >12 hours
	Battery Life: pumped instrument >10 hours
Battery	Charging: Dual rate drop-in charger;
	Dual rate charger/PC interface
	Rechargeable Li-ion batterypack
	Standard instrument >12 hours
	Pumped instrument >10 hours
Sampling	Optional internal pump with on/off button
Operating temperature range	-20°C to +50°C (-4°F to 122°F)*
Humidity	20 to 90% RH non-condensing**
PC Interface	RS232 connection via the interface charger
	RS232/USB converter available
	Portables PC also controls data logging, giving the user a choice of direct graphical output or a data file compatible with all leading spreadsheets
Calibration	Triple Plus+ can be routinely calibrated using Portables PC software
Accessories	Straight and telescopic probes, water trap, baffle plate, aspirator, calibration flow adaptor and hose
	Leather carry case***, is sold as an integral part of the unit and is not an accessory.
	Standard: Manual, shoulder strap and allen keys (pumped units
	include additional flow plate, 2m hose and pouch)

*   Toxic and oxygen sensors are not rated for continuous operation at high temperatures.
    Consult Crowcon if operating temperatures are likely to exceed 40°C (104°F) for extended periods.
** Toxic and oxygen sensors RH specifications vary, consult Crowcon for specific operating humidities.
*** Leather carry case is sold as an integral part of the unit and is not an accessory. Triple Plus+ must be used within the Leather gas to meet certification requirements.

The Triple Plus+ has two dual rate charging solutions supplied with UK, EU, US plug and without plug configurations. A vehicle adapter for in-vehicle charging is also available
•   Standard drop-in charging cradle
•   PC interface charger

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www.crowcon.com