



Portable multi-gas detectors offering advanced features and ease of use, with a low cost of ownership

Impact personal multi-gas detectors



Reliable Operation

- Pre-calibrated plug-in sensor cartridge
- Patented Surecell™ toxic sensors
- Stable and accurate

Easy to Use

- One button on/off
- Multi-lingual, intuitive menu system
- On screen prompts guide user
- Built-in correction factors for flammable gases
- Enhanced data logging capability as standard with up to 200 hours of continuous data storage for all channels of gas detected

Easy to Maintain

- Plug-in operation for all serviceable parts
- Cartridge replacement in less than one minute
- Re-calibration in less than two minutes when using Enforcer
- Minimized cost of ownership

Durable Housing

- Waterproof to IP67
- Rugged and impact resistant
- Built for everyday use

Advanced Optional Features

- Unpowered low-flow-rate allows up to 200 calibrations per gas cylinder
- Easy to calibrate with the unique Enforcer (% LEL sensor only) un-powered calibration station that completely automates bump testing and gas calibration
- Intrinsically safe communications technology between operator and attendant using the advanced SafeLink™ cable option between two Impact Pro units
- Excellent battery life using rechargeable NiMH batteries
- Precise infrared sensing technology

Alarm Indication

- 3 levels of instantaneous alarm, time weighted average alarms on toxic
- Periodic confidence flash and bleep
- Increasingly rapid flashing, ultra-bright alarm LEDs
- Powerful two tone audible alarm
- Vibrating alarm for noisy environments*
- Safelink communications*

User Friendly Pre-entry Check

- Peak hold function and drop line
- Hand aspiration
- Built-in automatic pump*

*Impact Pro model only

Impact portable gas detectors bundle feature-rich advantages into a unit offering a low cost of ownership. Available in two configurations (Impact & Impact Pro), Impact models accept serviceable and/or disposable cartridges, are pre-calibrated and ready to go from the box.

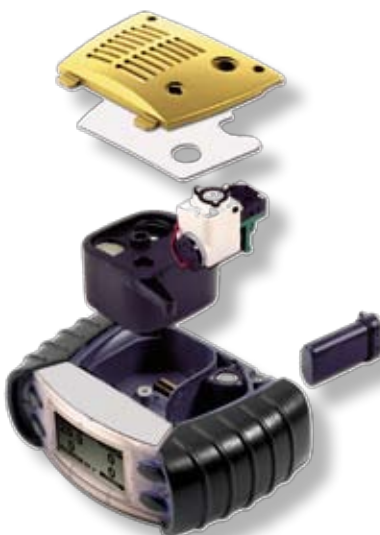
The Impact gas detectors are safe, small, lightweight, battery-powered and rugged — ideal for areas where exposure to toxic or flammable gases pose a risk. You benefit from one touch calibration, cartridge replacement in less than one minute, and IP67 rated durable housing that protects against dust/water ingress. Our unique cartridge design (with up to 4 sensors in a self-contained plug-in cartridge) allows you to change all sensors at once—for about the cost of a typical single sensor. Options include advanced infrared sensors, Safelink confined-space instrument-to-instrument communication, unpowered low-flow-rate Enforcer gas calibration/bump test station, rechargeable battery and more.



Impact Sensor Cartridge



Honeywell Analytics' unique cartridge technology enables the Impact range of portable multi-gas monitors to monitor and display up to four gases simultaneously. The pre-calibrated cartridges use high specification flammable, oxygen and toxic sensors to ensure that safe, accurate and reliable measurements are always made.



Convenient to Use

- Self contained package
- Pre-calibrated, ready to go
- No need to return instruments to central location
- Can be replaced in the field

Easy to Install

- Full instructions included with every cartridge
- Single captive screw fitting mechanism
- Asymmetrical design ensures cartridge can only be fitted one way
- Minimal training required

Planned Maintenance Made Easy

- Countdown to replacement or calibration included as standard
- Minimizes unexpected failures
- Maximizes availability to the user
- Provides predictive cost of ownership

Proven Sensor Technology

- High specification sensors
- Stable and accurate
- Poison resistant catalytic bead or IR cell for flammable
- Electrochemical and patented Surecell™ technology for toxic
- Over 30 years manufacturing experience

Supplied Fully Configured

- Gas specific data held on smart cartridge
- 3 levels of instantaneous alarm and time weighted average alarms on toxic
- Pre-set limits adjustable via PC if required

Serviceable Cartridge Option

- Individual sensor replacement possible
- Traditional service options apply
- Only required for exotic gases

Honeywell Analytics leads the market with over 30 years experience in making flammable, oxygen and toxic sensors. In excess of two hundred thousand flammable sensors and one million electrochemical sensors are manufactured every year. With the world's first fully automated production line, Honeywell ensures quality and repeatability so that exacting regulatory needs are always met.

The proven quality of sensors is at the heart of any gas monitor and is paramount for the protection of lives in hazardous working conditions. Using Honeywell Analytics patented Surecell™ electrochemical technology or poison resistant catalytic bead for your gas detection needs demonstrates a commitment to using the best available technology on the market to keep you and your team safe.

The Impact Sensor Cartridge is available in two configurations, disposable and serviceable. All 4-sensor cartridges include an oxygen, flammable or CO₂, and two toxic sensors. The smart cartridge includes all alarm settings and calibration data enabling cartridges to be easily fitted and swapped between instruments, subject to operational requirements.

Each pre-calibrated cartridge is supplied in a sealed container with calibration certificate and fitting instructions. Replacement of an existing cartridge can be done in less than one minute, simplifying maintenance and minimizing cost. The Impact Sensor Cartridge and unique Enforcer calibration accessory provides the lowest cost of ownership on the market.

Impact IR Sensor Cartridge

Impact Pro now includes a range of advanced infrared (IR) optical sensors with models available to detect % LEL or % VOL methane (as well as other hydrocarbons) and CO₂ with long-term stability. This additional sensor complements the proven electrochemical cell and catalytic bead technology within the Impact Pro range.

IR Technology Overview

Infrared Cells: IR sensors operate by passing infrared light through the gas sample and detecting the change in transmitted light as the molecules absorb the energy to change their vibrational and rotational status. A specific fingerprint can be assigned in the IR spectrum that represents certain gas molecules. Miniature IR sensors can now be practically incorporated into portable devices; they have the characteristic of a small footprint and relatively low battery consumption making for an ideal sensor for portable use to detect methane (linear) and other hydrocarbons at % LEL and % Vol applications. IR sensors can also be tuned to measure CO₂.



Confined Space Entry Kit

Confined space entry carrying case from Honeywell features high-impact, watertight protection along with a lifetime warranty against breakage. Molded foam interior has compartments for two Impact Pro detectors, calibration gas bottle, Enforcer bump test/calibration kit, charging cradle, datalogging cable, batteries and flow adapter; additional compartments are available for power supplies, cables and adapters. Case can be ordered separately or with fully stocked confined space entry kit. Call your sales representative for pricing.

Impact Sensor Cartridge Specifications



General Specifications					Sensor Technology		
Use	For use with Impact and Impact Pro portable multi-gas monitor for the protection of personnel from up to four hazardous gases in the working environment.						
Techniques used	Flammable - Catalytic bead/pellistor Toxic/oxygen - Electrochemical Toxic/Flammable - Infrared Cell						
Detectable Gases	Code	Range	Disposable	Serviceable *	Catalytic Bead	IR Cell †	Electrochemical
Oxygen (O ₂)	O	0-25 % v/v	Always fitted	Always fitted			x
Flammable	F	0-100 % LEL	Always fitted	One Catalytic Sensor Always Fitted	x		
Flammable IR %LEL	R	0-100 % LEL	Not available	IR Sensor Always Fitted		x	
Flammable IR %VOL	V	0-100 % VOL	Not available	IR Sensor Always Fitted		x	
Carbon Monoxide (CO)	C	0-500 ppm	O	O#			x
Hydrogen Sulfide (H ₂ S)	H	0-50 ppm	O	O#			x
Sulfur Dioxide (SO ₂)	S	0-20 ppm		O			x
Chlorine (Cl ₂)	L	0-10 ppm		O			x
Nitrogen Dioxide (NO ₂)	N	0-20 ppm		O			x
Ammonia (NH ₃)	A	0-100 ppm		O			x
Carbon Dioxide (CO ₂)	D	0-2% v/v		O			x
Carbon Dioxide (CO ₂) IR	T	0 – 5 %V/V		O#		x	

Notes: * Serviceable cartridges only available in 1 or 4 channel configurations. # All OFCH, OFC, OFH and OF are disposable only. C or H sensors only available for use in 4 gas Serviceable cartridges. † Infrared sensor cartridge models include one IR catalytic sensor for detecting flammable %LEL, %VOL or carbon dioxide; three additional electrochemical sensors are provided for detection of two toxic gases and oxygen.

Construction	Easy fit single captive screw with asymmetric design to prevent incorrect fitting by user. RFI shielded polypropylene caseworks for increased reliability and performance.
Operating temperature	-4°F to +131°F (-20°C to 55°C) for all gas sensors except Carbon Dioxide (Electrochemical) and Ammonia Carbon Dioxide (Electrochemical): 32°F to 104°F (0°C to 40°C) Carbon Dioxide: (Electrochemical) 6 months maximum Ammonia: -4°F to 104°F (-20°C to 40°C)
Storage temperature	Cartridge and replacement sensors: -10°C to 60°C /14°F to 140°F (6 months maximum) for all gases except Carbon Dioxide (Electrochemical) and Ammonia Carbon Dioxide (Electrochemical): 14°F to 104°F /-10C to 40C (6 months maximum) Ammonia: 14°F to 104°F /-10°C to 40°C (6 months maximum)
Humidity range	Continuous 20 to 90%RH. Intermittent 0-99%RH non-condensing.
Approvals	Class 1, Div 1, Groups A, B, C, D (UL, CSA). Only applicable when used with Impact (Pro) instrument
Standard supply	Each cartridge is supplied in sealed container complete with installation instructions, calibration certificate and spare pump seal
Optional accessories	Cartridges can be re-programmed and re-calibrated via the Impact and Impact Pro instrument and optional base station and PC based Impact Configuration Utility. (Not all cartridge configurations are available. Contact your Honeywell Analytics representative for more information/ availability)

Ordering information

Notes:

- The Impact Pro sensor cartridges that include an IR sensor are serviceable.
- All the IR sensor options occupy the same cell position as the catalytic bead so only either one IR or the catalytic sensor can be installed within any single cartridge.
- Hydrogen (H₂) cannot be detected using the IR principle.
- No alarms are provided for the 0-100% Volume IR sensor
- Infra Red sensor options are UL and ATEX certified only. Impact and Impact Pro instruments must be ordered separately.

Key	
Code	Gas Name
O	Oxygen
F	Flammable
C	Carbon Monoxide
H	Hydrogen Sulfide
A	Ammonia
D	Carbon Dioxide
N	Nitrogen Dioxide
S	Sulfur Dioxide
L	Chlorine
R	Flammable %LEL (IR)
V	Flammable %VOL (IR)
T	Carbon Dioxide (IR)

CHANNELS#	TYPE	
	(D)isposable	(S)erviceable
2	XX	Not Available
3	CX XH	AX DX NX SX XL
4	CH	See Table

e.g. 2302BC S 4 OF AS E
= 2302BCS40FASE

4 CHANNEL SERVICEABLE OPTIONS						
	A	C	H	N	S	L
A	6	6	6	6	3	3
C	3	6	6	3	3	3
D	3	3	3	3	3	3
H	3	6	6	3	6	3
N	3	6	6	6	6	3
S	6	6	3	6	6	6
A					S	

ALARM SETTINGS		
E	UK	EH40
O	USA	OSHA*
F	France	
G	Germany	
I	Italy	
S	Spain	
D	Netherlands	

* Default

Impact Specifications



General Specifications

Use	Portable multi-gas monitor for the protection of personnel from up to four hazardous gases in the working environment.
User interface	Ultra clear, backlit, alphanumeric display. Intuitive push button menu system with user selectable operation in English, French, German, Italian, Spanish and Dutch. Other languages available upon request.
Configuration and data download	Supplied configured, ready to use including black box data-logging as standard. Configurable via optional PC software and base station for enhanced control of logging functions and data download.
Construction	Impact resistant plastic, anti-static to EN50014.
Dimensions	1.9" x 3.3" x 5.3" (49mm x 84mm x 136mm) .
Weight	Maximum 520g (18oz) including rechargeable battery and optional pump.
IP rating	IP67 (Minimum).
Operating temperature[#]	-4°F to +131°F (-20°C to +55°C)
Storage temperature[#]	Instrument -40°F to +176°F. (-40°C to +80°C)
Humidity range[#]	Continuous 20 to 90%RH. Intermittent 0-99%RH non-condensing.
Alarms	3 levels of instantaneous alarm per channel. Time weighted average alarms on toxic channels. Supplied pre-set (user configurable via optional PC software and base station).
Audible alarm	Periodic confidence beep with differing dual tone for fault, gas alarm and warning rated 85dBA at 1m (90dBA at 1ft).
Visual alarm	Green confidence flash with rapid red flashing for fault, gas alarm and warning indication.
Battery performance	Ni-MH rechargeable, operating life > 10 hours (Charging time 7 hours). Dry cell disposable > 17 hours. Nominal reduction of 10% when used with pump.
Optional pump	Supplied as standard with Impact Pro. Typical flow rate 0.3l/min. Automatic start/stop feature with auto-test on start-up and flow fail alarm.
Approvals	USA: Class 1, Div 1, Groups A, B, C, D (UL). Canada: Class 1, Div 1, Groups A, B, C, D (CSA). Marine: Marine Equipment Directive MED 96/98/EC.
Standard supply	Each instrument is supplied complete with quick start guide, multi-lingual operating instructions on CD, dry cell battery holders and batteries, belt clip and flow adaptor. Fully configured and ready to accept either disposable or serviceable sensor cartridges the key considerations in selecting either the Impact or Impact Pro are highlighted below.

Variations	Impact	Impact Pro/Impact Pro IR
Cartridge type [#]	Disposable only	Disposable or Serviceable
Integral pump/pump adaptor	No	Yes
Vibrating alarm	No	Yes
Safelink	No	Yes

Ordering information

Notes:

A wide range of optional accessories are available including:

- Base station and Impact Configuration Utility (required for data download and configuration).
- Rechargeable NiMH batteries for use with base station or offline charger.
- Enforcer calibration system.
- Safelink communication system.
- Pre-entry sample probes including hand aspirator, 1m probe, tubing and ball float.
- Body harness and harness clip offering alternate mounting arrangements.
- Field case for housing of all accessories as required.

Disposable or serviceable sensor cartridge must be ordered separately[#].

[#] Refer to cartridge datasheet for gas specific data.

e.g. 2302B2000 **9** **U** **E** = 2302B2000**9UE**

TYPE
8 Impact
9 Impact Pro

CERTIFICATION
U USA
Canada
UL
CSA

LANGUAGE
E English*
F French
G German
I Italian
S Spanish
D Dutch
*Default

Enforcer Bump Test / Calibration Kit



Regulations require regular testing of gas detection equipment to ensure that the instrument will work as and when required. When using an Impact multigas detector, the Enforcer allows you to easily comply with regulations without the need for costly test facilities or third parties.

Convenient to Use

- Portable design
- Lightweight and compact
- Disposable multi gas cylinder
- Wall mounting bracket with security fixing included

Easy to Operate

- Simple five-step operation
- Calibration in 2 minutes
- Minimal training required

Minimal Running Costs

- Unpowered, low flow rate operation
- No need for third parties
- Reduce instrument downtime
- Simplify operations

Easy to Maintain

- Durable plastic housing
- Wipe clean surfaces
- Replaceable gaskets and seals
- Built-in pressure indicator tells you when gas needs replacing

Maintain Records

- Calibration history recorded by instrument
- Print history via optional PC software
- Ensure compliance with regulations



'Bump' testing should be carried out before use of any portable gas detector. This involves exposing each gas sensor to a known concentration of target gas and ensuring that it responds correctly.

Personal gas detectors are normally calibrated every 3 to 6 months. Typically this requires specialist knowledge and equipment that is costly or the work is sub-contracted to a third party. During this time instruments are not available for use and so could delay essential operations or force additional detectors to be purchased.

The Enforcer calibrates Impact multigas detectors fitted with oxygen, flammable, carbon monoxide and hydrogen sulfide sensors in less than two minutes — and can also perform low-level oxygen tests. Volumes and flow rates are minimized to allow approximately 200 calibrations per cylinder of gas, making calibration as low in cost as a 'Bump' test.

Impact instruments when used with the Enforcer are always available for use. Calibration results are recorded for printing at a later date via the optional PC software thereby ensuring that instrument histories are always available if required.

Calibration in Five Easy Steps with Enforcer

- 1**
 - Screw the multi gas cylinder into Enforcer
 - Check the pressure gauge to ensure the cylinder is not empty
- 2**
 - Open the Enforcer by pulling the sliding tray forward
 - The tray 'locks' open when lowered in its tracks
- 3**
 - Turn on and insert the Impact to be calibrated. The instrument may be zeroed in fresh air first if required
 - Ensure that the instrument is locked into position on the guides located on the sliding tray



- 4**
 - Close the sliding tray by lifting the handle
 - When closed Impact will automatically recognise



- 5**
 - Press the button to calibrate the Impact
 - Calibration can take between 45 and 90 seconds subject to the age of the instrument
 - Upon completion Impact will display the results of the calibration
 - Results may be downloaded via the PC software and printed for report purposes if required

Safelink Confined-Space Communications



Safelink allows two Impact Pro portable multi gas detectors to be connected together so that the gas readings and instrument status from one unit repeated on the other. This allows a co-worker in a confined space to be monitored remotely and provides a simple means to pass messages back and forth. 'Emergency assistance' can easily be called by pressing and holding any button so that help is never far away.

Ensures Good Working Practice

- Continuous monitoring of 'Entrant'
- Simple and reliable means of communication
- Prompts users to maintain contact
- Ensures compliance with regulations

Minimizes Risk

- 'Attendant' always aware of 'Entrant' status
- Help can be made more quickly available
- 'Rescuer' is aware of conditions prior to entry

Easy to Use

- Plug and play configuration
- Intuitive, multi-lingual menu system
- Single button operation
- Single button 'Emergency' alarm facility
- User configurable messages

Reliable

- Instruments continuously talk to each other
- Full data integrity check eliminates false alarms
- No blind spots

Multiple Applications

- Gas check prior to entry
- On-going monitoring during operations
- Communications system in difficult areas
- Search and rescue

Safelink is designed to simplify compliance with confined space entry regulations stating that an Attendant must continuously monitor the status of the Entrant and initiate rescue procedures if necessary. When the Safelink cable is attached between the two Impact Pro instruments the link is easily recognized. One instrument is configured as the Attendant and the confined space is automatically designated as the Entrant; neither instrument can now be turned off.

The Attendant is prompted at regular timed intervals to send a message to the Entrant who has to reply by pressing a button on the instrument. If no reply is received both instruments raise alarms. Other pre-defined messages may be configured using the optional PC software allowing a flexible method of communication to be established.



Enforcer and Safelink General Specifications



Enforcer Specifications

Use	Test and calibration accessory for use with Impact multigas monitor when fitted with oxygen, flammable, carbon monoxide and hydrogen sulfide sensors
Technique	A controlled amount of gas is applied to the instrument. The response is compared against historical data obtained during manufacture and if within tolerance automatic adjustment of readings is made
Construction	Polycarbonate
Dimensions	7" x 5.7" x 22" (170 mm x 145 mm x 560 mm) <small>Maximum length includes cylinder and sliding tray in open position</small>
Weight	47 oz (1.34 Kg)
Ordering information	Enforcer with multi gas cylinder: 2302B0831 (EN50054), 2302B1336 (EN61778) Enforcer excluding multi gas cylinder: 2302B0650

Multi-Gas Cylinder Specifications

Contents	100 ppm Carbon Monoxide 40 ppm Hydrogen Sulfide 2.5% Methane (CH ₄) 15% Oxygen Nitrogen balance
Accuracy	+/-5%
Number of applications per cylinder (calculated)	>200
Type	2AL
Standards	Europe - One fill valve in accordance with prEN12205 USA / R.O.W. - DOT 39 Standard
Dimensions (approx.)	3.1" x 9.5" (80 mm x 240 mm)
Weight	16 oz (0.44 Kg)
Pressure	34 bar (maximum)
Ordering information	Multi gas calibration gas cylinder: 2302D0833 (EN50054), 2302D0761 (EN61779)



Safelink Specifications

Use	Data cable to allow two Impact Pro personal multigas monitors to be linked together to form an integrated gas monitoring and communication system
Technique	RS485 digital communication link with CAN line drivers to reject false alarms and maximize data integrity
Maximum operating distance	Up to 300 ft (100 m)
Materials	Screened twisted pair PVC cable c/w weatherproof connectors and strain reliefs
Ordering information	30 ft (10 m) cable 2302B0735 150 ft (50 m) cable 2302B0737 300 ft (100 m) cable 2302B0746



