MX6 iBrid™

Multigas Monitor
Operation Guide

Part Number:
17130279-1
Revision 7

Release Date
January 31, 2014

INDUSTRIAL SCIENTIFIC

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CERTIFICATIONS

Each MX6 iBrid^{TM} is certified by one or more certifying bodies (CBs). The approved uses for which a unit is certified appear on labels affixed to the instrument.

When a new certification is received, it is *not* retroactive to any unit that does not bear the marking on its label.

Instrument certifications at the time of this document's publication are noted below. To determine for which uses a unit is certified, always refer to the unit's labels.

Certification markings and standards

Directive or code	Certification marking	Standard
ATEX[1]	Ex ia IIC T4 Ga / Ex ia I Ma; IP65 (IP64 pump version)	EN 60079-0: 2009
		EN 60079-1: 2007
	Equipment Group and Category: II 1G/ I M1 (I M2 w/IR sensor)	EN 60079-11: 2007
		EN 60079-26: 2007
		EN 50303: 2000
		EN 50271: 2001
		EN 60079-29-1: 2007
		EN 50104/A1: 2004

IECEx[2]	Ex ia IIC T4 Ga T4	IEC 60079-0: 2007
	Ex ia I (Ex ia d I w/IR sensor)	IEC 60079-1: 26:2006
		IEC 60079-11: 1999
UL[3]	Class I, Group A B C D T4	UL 913 7th Ed.
	Class II, Group F G	UL 60079-0 5th Ed.
	Class I, Zone 0, AEx ia IIC T4	UL 60079-11 5th Ed.
CSA4	Class I, Division 1	C22.2 No. 152.
China Ex	Ex ia d I/IIC T4	–
MSHA	CFR30, Part 22, Intrinsically safe for methane/air mixture	–
ANZEx	Ex ia s Zone 0 I, IP64 Asp., IP65 Dif. Ex ia s Zone 0 IIC T4	–
INMETRO	BR - Ex ia d IIC T4 Gb	–
GOST-R	PBExiadI X / 1ExiadIICT4 X	–
KOSHA	Ex d ia IIC T4	–
China CPC	Metrology Approval	–

[1]The MX6 multi-gas monitor complies with relevant provisions of European ATEX directive 2006/95/EC and 94/9/EC 94/9/EC and EMC directive 2004/108/EC.

[1]The EC type examination certificate is DEMKO 07 ATEX 0626395X; for equipment group and category II 1G; with marking code Ex ia IIC T4 Ga for an ambient temperature range of -20°C to 40°C, with the alkaline battery pack P/N 17131046-3 or -20°C to 55°C with the li-ion battery pack, P/Ns 17131038-1, and 17131038-2.

[1]The EC type examination certificate is INERIS 08 ATEX 0026X; for equipment group and category I M1 /M2 with marking code Ex ia d I for an ambient temperature range of -20°C to 40°C, with the alkaline battery pack P/N 17131046-3 or -20°C to 55°C with the li-ion battery pack, P/Ns 17131038-1, and 17131038-2.

[1]The EC type examination certificate is INERIS 10 ATEX 0027X; for equipment group and category II 2 G with marking code EN 60079-29-1, and EN 50104.

[1 and 2] The MX6 multi-gas monitor is constructed with reference to published standards of directive 72/23/EEC, to eliminate electrical risks and fulfill 1.2.7 of ANNEX II of directive 94/9/EC.

[2] Intrinsically safe for Zone 1 Classified Areas within an ambient temperature range of -20°C to 40°C, with the alkaline battery pack and -20°C to 55°C with the li-ion battery pack.

[3]The MX6 is UL classified only as to intrinsic safety for use in Class I, Division 1, Groups A B C D; T4 and Class II, Groups F, and G and Class I, Zone 0, AEx ia IIC T4 classified locations with the li-ion battery pack P/Ns 17131038-1, and 17131038-2 for T ambient ≤ 55ºC or alkaline battery pack P/N 17131046-3 for T ambient ≤ 40ºC.

[4] Certified according to the Canadian Electrical Code for use in Class I, Division 1 Hazardous Locations within an ambient temperature range of -40°C to 40°C for the alkaline battery pack and -40°C to 55°C for the li-ion battery

pack. CSA No. 152 certification applies when the instrument is calibrated to 50% LEL CH4, and for a temperature range of 0°C to 40°C. **CAUTION:** Before each day's usage, sensitivity must be tested on a known concentration of pentane or methane equivalent to 25%-50% of full scale concentration. Accuracy must be within -0% to +20% of actual concentration. Accuracy may be corrected by referring to the zero/calibration section of the instruction manual.

WARNINGS AND CAUTIONARY STATEMENTS

IMPORTANT: Failure to perform certain procedures or note certain conditions may impair the performance of this product. For maximum safety and optimal performance, please read and follow the procedures and conditions listed below.

⚠️　　**IMPORTANT**: Read and understand this manual before operating.

⚠️　　**IMPORTANT**: The instrument must be charged before its first use.

⚠️　　**IMPORTANT**: Be sure to turn off the instrument before (1) servicing the unit or (2) replacing the battery.

⚠️　　**IMPORTANT**: Battery contacts are exposed on battery packs when they are removed from the instrument. Do not touch the battery contacts and do not stack battery packs on top of each other.

⚠️　　**Warning:** Explosion hazard. Only replace batteries in nonhazardous locations. Alkaline battery pack is only approved for use with Duracell MN 1500 or Rayovac LR6 batteries. Do not mix batteries from different manufacturers. Replace all batteries at the same time. Do not store instruments with alkaline batteries installed.

⚠️　　Prior to each day's use, a bump test should be performed. If the instrument does not pass the bump test, a full calibration is recommended.

⚠️　　Oxygen deficient atmospheres may cause combustible gas readings to be lower than actual concentrations.

⚠️　　Oxygen enriched atmospheres may cause combustible gas readings to be higher than actual concentrations.

⚠️　　Verify the calibration of the combustible gas sensor after any incident where the combustible gas content has caused the instrument to display an over-range condition.

⚠️　　Silicone compound vapors or other known contaminants may affect the combustible gas sensor and cause readings of combustible gas to be lower than actual gas concentrations. If the instrument has been used in an area where silicone vapors were present, always calibrate the instrument before next use to ensure accurate measurements.

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⚠ Sensor openings and water barriers must be kept clean. Obstruction of the sensor openings or contamination of the water barriers may cause readings to be lower than actual gas concentrations.

⚠ Sudden changes in atmospheric pressure may cause temporary fluctuations in the oxygen reading.

⚠ Charge battery, change pump filter, service unit, and use its communication port only in nonhazardous locations. Not for use in oxygen-enriched atmospheres.

⚠ **WARNING:** Substitution of components may impair intrinsic safety and may cause an unsafe condition.

⚠ **CAUTION:** For safety reasons, this equipment must be operated and serviced by qualified personnel only. Read and understand the instruction manual completely before operating or servicing.

⚠ **CAUTION:** High off-scale readings may indicate explosive concentration.

⚠ **CAUTION:** Any rapid up-scale reading followed by a declining or erratic reading may indicate a gas concentration beyond the upper scale limit which may be hazardous.

⚠ WARNING: The use of leather cases can produce inaccurate readings with diffusion (non-aspirated) gas detection instruments for specific monitoring applications. Leather cases should be used ONLY as carrying cases, and NOT for continuous monitoring, with diffusion instruments configured to measure gases **other than** O_2, CO, CO_2, H_2S, and combustible gases (LEL/CH_4).

⚠ Industrial Scientific recommends the "2 & 2 Sampling Rule" when sampling with a motorized pump and tubing, allow for 2 minutes plus 2 seconds per foot of tubing used, prior to noting the monitor readings. This allows time for the gas to reach the instrument and for the sensors to adequately react to any gases present. ISC recommends that clear urethane tubing, part number 17065970, be used when sampling for the following gases: Ammonia (NH3), Chlorine (Cl2), Chlorine Dioxide (ClO2), Hydrogen Chloride (HCl), Hydrogen Cyanide (HCN), Nitric Oxide (NO), Nitrogen Dioxide (NO2), Phosphine (PH3), Sulfur Dioxide (SO2), or Photo Ionization Detectors (PIDs) used to detect volatile organic compounds (VOCs).

⚠ Contact your service representative immediately if you suspect that the MX6 monitor is working abnormally.

MSHA conditions of use

The following instructions pertain to the use of the MX6 in conjunction with MSHA approval.

MSHA approved for use with the following battery packs only:

(A) Replaceable alkaline battery pack, part number 1713-1046-6, consisting of three each of either of the following 1.5 V battery types: Duracell MN 1500 or Rayovac LR6.

- Do not mix batteries from different manufacturers.
- Replace all batteries at the same time.
- The *individual* alkaline batteries may be replaced in a gassy area. Do not allow dust to enter the unit when replacing individual batteries.
- The battery *pack* must be replaced in fresh air only.

(B) Rechargeable lithium-ion battery pack part number 1713-1038-4, or -5, containing two or three 3.6V, 1.8 amp-hour Lithium Batteries.

- The lithium-ion cells are not user-replaceable.
- The lithium-ion pack must be charged in fresh air only.

CAUTION: For compliance determinations required by 30 CFR 75, Subpart D, the monitor must display "CH4" and "%VOL" during the monitor's start-up sequence.

CAUTION: The Model MX6 iBrid Multi-Gas Monitor must be configured to include a catalytic sensor, Model 4L-LEL, P/N 1710-5081, (CH4, 0-5% v/v).

CAUTION: The IR (infrared) methane sensor reading is not to be used for methane concentrations below 5% in air.

CAUTION: The Model MX6 iBrid Multi-Gas Monitor must be calibrated according to the procedure specified in the instruction manual.

CAUTION: In applications requiring MSHA certification, the IR sensor for detecting up to 100% v/v methane-in-air the sensor must be calibrated manually; the DS2 docking station cannot be used to calibrate the IR sensor. The recommended calibration gas for IR methane sensor calibration is 99% volume methane.

CAUTION: When calibrated using methane concentrations less than 5% of volume, reading accuracy of the infrared methane sensor may not be guaranteed to be better than +/-20%.

KEY FEATURES

Overview

Feature	Description
Audio Indicator	Used for alarming, warnings, and the optional confidence indicator. There are two levels of audio gas alarms based on the frequency of the beeps and the length of delay between beeps. • Low-level (level-1): Low frequency beeps with a long delay • High-level (level-2): High frequency with short delay For all sensors but oxygen, if the gas reading is above the high alarm level, the instrument sustains the high alarm until the gas reading is below the high alarm level, then the instrument switches to the low alarm until the gas reading is below the low alarm level. For the oxygen sensor, a high alarm only is indicated for both oxygen enrichment and depletion.
Vibrating Alarm	Pulsing alarm that is used for limit alarms and as a confidence indicator.
Visual Alarm	The instrument has alarm LEDs located beneath the opaque sensor array at the top of the unit. There are two levels of visual alarms based on the length of delay between the LED flashes. • Low-level (level-1): LEDs are pulsed with a long delay • High-level (level-2): LEDs are pulsed with a short delay The LCD backlight flashes as part of all alarm sequences, except for the battery low condition. The visual alarm is also used as the confidence indicator which, when enabled, blinks the LEDs once every 30 seconds.
Infrared (I/R) Port	An optical media interface (per IrDA physical layer specification) is located on the bottom of the instrument and is used for infrared (I/R) data transmissions at speeds of 115200 bytes/second.
Clip/Connector	Located on the back of the MX6 for hands-free gas monitoring. A wrist strap is also provided to protect against drops during operation.
Cradles	Three different cradles are available for use with the MX6 multi-gas monitor.

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KEY FEATURES

- Charger: Charge the internal batteries
- Data link: Download data (e.g., events) to a host computer
- Charger/Data link: Combination of both.

Color LCD	TFT high-resolution, color liquid crystal display.
Menu-Driven User Interface	The user interface is menu-driven and contains the LCD, Navigation Button, Audio Indicator, Vibrating Alarm, and Visual Alarm. The menu system consists of two different root menus. The background color of the LCD identifies the current menu.

- Operation Menu: white background on LCD
- Configuration Menu: yellow background on LCD.

Security	Access to the Configuration Mode can be protected using a security password. When activated, this password must be entered in order to access and change the parameters within the Configuration Menu.
Alarm Events	Fifteen alarm events for the instrument are recorded into a FIFO queue in nonvolatile memory and are time stamped. An event is recorded any time that the instrument goes into alarm. Event information (which can be downloaded from the instrument) includes instrument serial number, sensor type, sensor serial number, gas type, peak exposure level, alarm duration in minutes and seconds, and date and time that alarm occurred.
Error Events	Fifteen error events for the instrument are recorded into a FIFO queue in nonvolatile memory and are time stamped. An error event is recorded any time that a fault occurs (including pump faults and fault events during the self-test). The information stored for each event includes instrument serial number, fault that occurred, fault error code, date and time stamp, and any pertinent data (i.e., pump current reading).
Data log	Data logging is a feature that allows a variety of system parameters to be recorded at regular intervals (and saved internally) for retrieval (and viewing) at a later date. The data log feature saves the following information:

- Gas Type
- Gas Reading
- Time of Day
- Date
- Temperature
- Battery Level

KEY FEATURES

- Alarm Conditions Flagged
- STEL
- Snapshot Enabled/Disabled
- User ID
- Site ID
- TWA

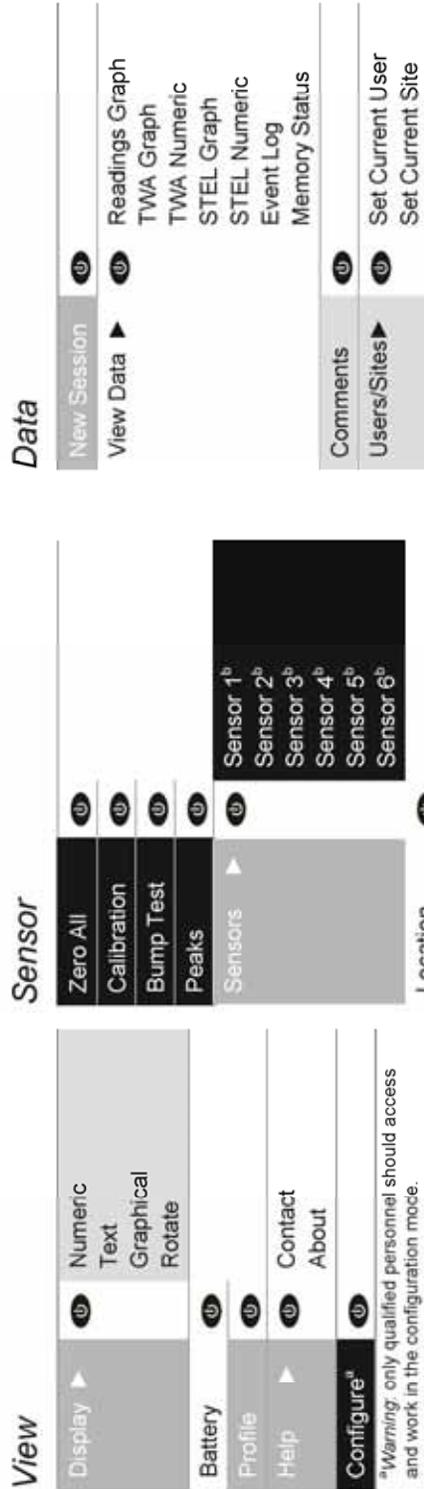**NOTE:** Data are saved in case of power loss.

QUICK START MENU FLOWCHARTS

Operation-mode Menu System

View

Display ▲
- Numeric
- Text
- Graphical
- Rotate

Battery

Profile ▲

Help ▲
- Contact
- About

Configure[a]

[a]Warning: only qualified personnel should access and work in the configuration mode.

Sensor

Zero All

Calibration

Bump Test

Peaks

Sensors ▲
- Sensor 1[b]
- Sensor 2[b]
- Sensor 3[b]
- Sensor 4[b]
- Sensor 5[b]
- Sensor 6[b]

Location

[b] Access these tasks, information screens, or settings for an individual sensor; zero, calibration, or bump testing; most recent (or next) calibration date and span trends; for a PID or LEL sensor, edit the unit of measure, RF (PID), or correlation factor (LEL).

Data

New Session

View Data ▲
- Readings Graph
- TWA Graph
- TWA Numeric
- STEL Graph
- STEL Numeric
- Event Log
- Memory Status

Comments

Users/Sites ▲
- Set Current User
- Set Current Site

Instrument Buttons

Any button — Activate the backlight.

⏻ — Start a task. Confirm or cancel an action. Change an item's status (for example, from on to off).

◄ or ► — Navigate among menu items or items on a display screen. Enter text or values in a data field.

▼ or ▲ — Navigate from menu to menu or among items on a display screen. Use as a cursor within a data field.

Diagram Key

Begin task

Access settings

Edit setting

View information

Note: Access to individual options varies based on the instrument's configured settings.

Config Sensor Data [X]

Exit Save Profile

Configuration

Configuration-mode Menu System

Warning: only qualified personnel should access and work in the configuration mode.

Config

Admin ▲
- Password
- Clock
- Language
- Company
- Backlight
- Defaults

Alarms ▲
- Audio
- Visual
- Vibrate
- Latch
- While Docked
- Allow Shutdown
- Confidence ▲

Display ▲
- Time
- Temp
- Both (time and temp)
- PID Factor
- LEL Factor
- Both (both factors)

Start-up ▲
- User
- Company
- Cal Date ▲
- Zero
- Self-test
- Bump

Profiles ▲
- Set
- Save ▲
- Delete

Sensor

Sensors ▲
- Sensor 1[c]
- Sensor 2[c]
- Sensor 3[c]
- Sensor 4[c]
- Sensor 5[c]
- Sensor 6[c]

Options ▲
- Field Zero[d]
- Field Cal[d]
- Field Bump[d]
- Field Peaks[d]
- Cal Date[e] ▲
- Cal Overdue[e]
- Bump Overdue[e]
- Bump Level[e]

RF List ▲
- Favorite
- Custom

Location

[c] Enable or disable a sensor. Set alarm values (high, low, and STEL) and the TWA time base. Set calibration gas values and properties.

[d] Enable or disable the feature.

[e] Choose the calibration due format: date of the next or last (most recent) calibration. Determine unit behavior when a calibration is overdue: automatic shutdown, continued operation, or continued operation with "cal overdue" user notification. Adjust the bump test criteria.

Data

Options ▲
- Overwrite
- Interval
- Field View
- View Events

Mode

Clear

Users ▲
- Set Current
- Add
- Delete
- Field Change

Sites ▲
- Set Current
- Add
- Delete
- Field Change

Recommended Practices

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Procedures

Procedure Frequency

First Use

PROCEDURES

When completed regularly, the procedures defined below help to maintain proper instrument functionality and enhance operator safety.

Configuration. The configuration process allows qualified personnel to review and adjust a unit's settings.

Bump Test (or "functional test"). Bump testing checks for sensor and alarm functionality. The installed sensors are briefly exposed to expected concentrations of calibration gases that are greater than the sensors' low alarm set points. When one or more sensors "pass" the test, they are "functional" and the unit will alarm. Each sensor's "pass" or "fail" result is indicated on the unit's display.
Note: a bump test does not measure for sensor *accuracy* (see "Calibration").

Zero. Zeroing sets each installed sensor to recognize the ambient air as clean air. If the ambient air is not truly clean air, gasses that are present and relevant to the installed sensor types will be measured and displayed as zero. Readings will be inaccurate until the unit is correctly zeroed in truly fresh air or with a zero air cylinder.

Calibration. All sensors gradually degrade over time. This diminishes a sensor's ability to measure gas concentrations accurately; however, regular calibrations adjust the instrument to compensate for this decline in sensitivity. During calibration, the installed sensors are exposed to expected concentrations of calibration gases and, when needed, the instrument will self-adjust to ensure the accurate measurement and display of detected gas concentrations.
Note: when a sensor has degraded beyond an acceptable level, no further adjustment is possible and the sensor will no longer pass calibration.

Peak Readings. The instrument stores the highest detected gas readings, the "peak readings" or "peaks". Bump testing and calibration will often register new peak readings. Therefore, the clearing of the peak readings should *follow* each

calibration. The instrument operator may also wish to clear the peak readings after a bump test, before a change in location, or after an alarm is addressed and cleared.

Note: The peak readings and the data log readings are stored independently of one another; therefore, clearing the peak readings does not affect the data log. Powering the instrument off or changing its battery does not affect the peak readings. These checks and balances help promote operator safety, and serve to contain the peak readings in a "black-box" manner. In the event of a gas-related incident, this black-box record can be useful to the safety team or a prospective investigator.

PROCEDURE FREQUENCY

Industrial Scientific Corporation (ISC) minimum frequency recommendations for each procedure are summarized in the table below. These recommendations are based on field data, safe work procedures, industry best practices, and regulatory standards to enhance worker safety. ISC is not responsible for setting customer safety practices and policies. These policies may be affected by the directives and recommendations of regulatory groups, environmental conditions, operating conditions, instrument use patterns and exposure to gas, and other factors.

Recommended procedure frequency

Procedure	ISC Recommended minimum frequency
Configuration	Before first use and as needed thereafter.
Calibration[a]	Before first use and monthly thereafter.
Bump test[b]	Prior to each day's use.

[a]Between regular calibrations, ISC also recommends a calibration be performed immediately following each of these incidences: the unit falls, is dropped, or experiences another significant impact; is exposed to water; fails a bump test; or has been repeatedly exposed to an over-range (positive or negative) gas concentration. A calibration is also recommended after the installation of a new (or replacement) sensor.

[b]If conditions do not permit daily testing, bump tests may be done less frequently based on company safety policy.

Note: The use of calibration gases not provided by ISC may void product warranties and limit potential liability claims.

FIRST USE

The MX6 multigas monitor (instrument) is powered by an alkaline or rechargeable Lithium-ion (Li-ion) battery.

The lithium-ion battery packs are charged at the factory; however, some or all of the charge may deplete before the monitor arrives or is unpacked. ISC recommends that the monitor be fully charged using an ISC compatible charger

or docking station; this may require up to eight hours. Note that the LCD on the MX6 shows that the battery is charging.

After a unit is fully charged, qualified personnel should configure and calibrate it before first use (see chapters 5 and 6).
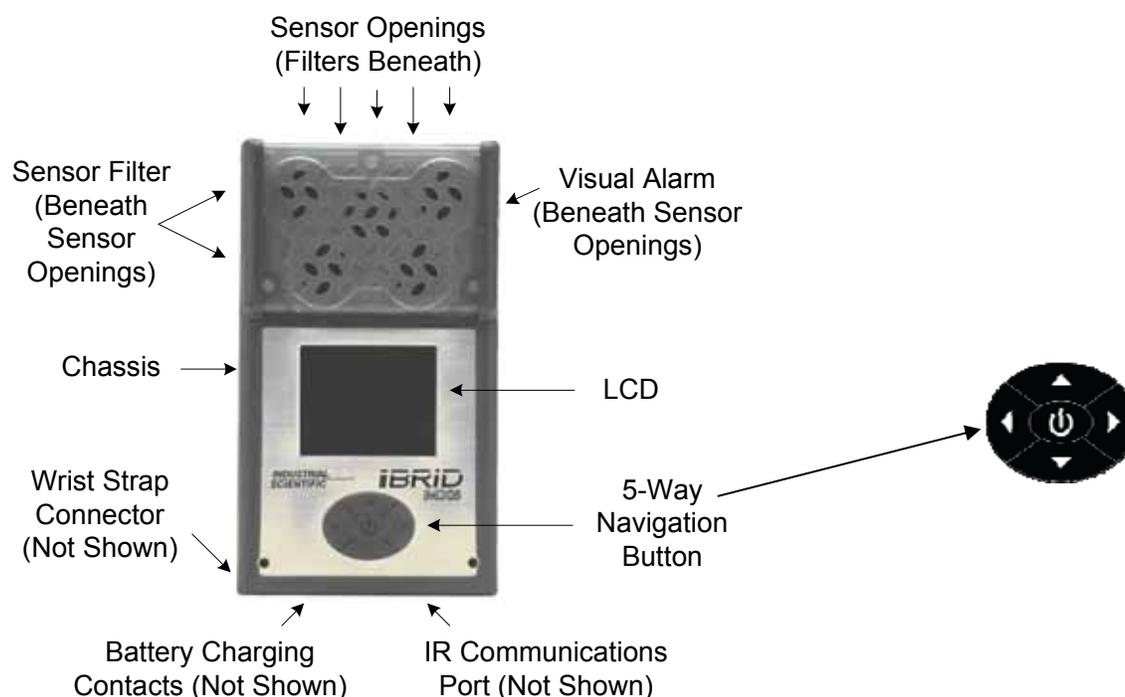
Instrument Basics

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Hardware Overview

Power On and Shutdown

Gas-monitoring Display Screen

HARDWARE OVERVIEW

The MX6 multigas monitor is a handheld, "dockable" instrument for personal protection. The five-way navigation button is shown in detail below. The button symbols are used within this document's instructional text.

Sensor Openings
(Filters Beneath)

Sensor Filter
(Beneath
Sensor
Openings)

Visual Alarm
(Beneath Sensor
Openings)

Chassis

LCD

Wrist Strap
Connector
(Not Shown)

5-Way
Navigation
Button

Battery Charging
Contacts (Not Shown)

IR Communications
Port (Not Shown)

POWER ON AND SHUTDOWN

Two operation basics are powering on the instrument and shutting it down.

Power on.

To power on the MX6 instrument, press and hold ⏻ for at least 3 seconds.

After power on, a series of start-up screens is displayed on the LCD. Start-up

screens may vary depending on the unit's configuration.

If no pump is detected by the unit, the gas-monitoring display screen is activated (see next section).

If the unit detects a pump, it requires the operator-assisted completion of a pump check, a built-in safety measure to ensure the pump is operational. The instrument operator is prompted through the process by the following display-screen sequence.

Pump On	Pump Test Required Block Pump Inlet Now	Pump Test Passed Unblock Pump Inlet OK	Pump Test Passed Pump Restarting Please Walt
No action necessary.	Place a finger over the pump inlet to block the flow of air.	Remove the finger from the inlet and press ⬢.	No action necessary.

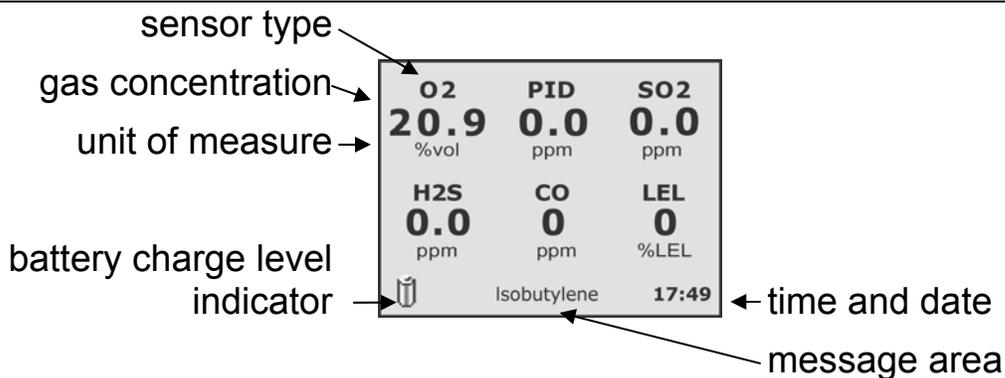After a successful pump check, the gas-monitoring display screen is activated.

Shutdown.
To shut down the instrument, hold ⬢ for more than two seconds. A confirmation screen is displayed to provide for user verification of the shutdown.

GAS-MONITORING DISPLAY SCREEN

The gas-monitoring display screen for a six-sensor instrument is reproduced below.

Reading the gas-monitoring display screen

sensor type

gas concentration

unit of measure

O2	PID	SO2
20.9	0.0	0.0
%vol	ppm	ppm
H2S	CO	LEL
0.0	0	0
ppm	ppm	%LEL

battery charge level indicator

Isobutylene   17:49   ← time and date

message area

NOTE: The sample gas monitoring display screen is shown here in numeric format. Depending on the unit's configuration, some items may not display or may display differently.

Sensor *types* are displayed as solid black text during normal operation, and blinking black text during alarm conditions.

The sensor *readings* are displayed as solid black numerals during normal operation, and solid red numerals during alarm conditions.

The unit of measure is displayed as black text beneath the sensor readings.

NOTE: For over-range conditions, a blinking "OR" is displayed in red as the sensor value. If the alarm is a STEL or TWA, the word "STEL" or "TWA" is shown to indicate the corresponding alarm.
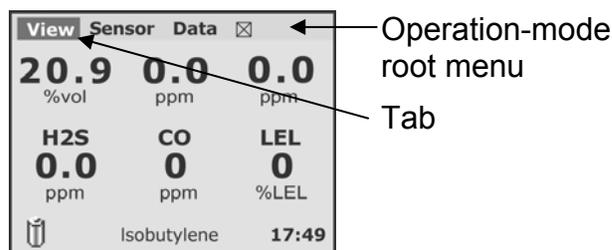

Operation

Menu System

Activating the Root Menu

Navigation

Locating Operation-mode Features

MENU SYSTEM

The *operation-mode root menu* is the entry point to any feature. It is activated from the gas-monitoring display screen and has three menu *tabs*.

To activate the root menu, start with a powered-on instrument and follow the instruction below.
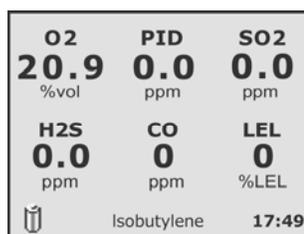

Operation-mode root menu

Tab

ACTIVATING THE ROOT MENU

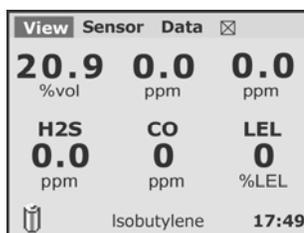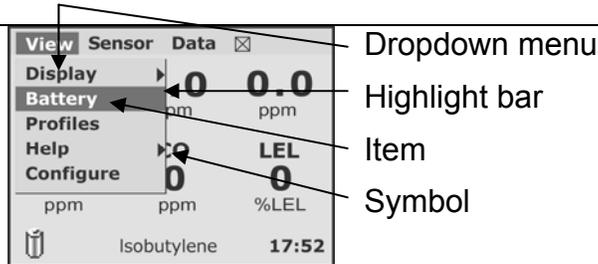| Instruction	Display Screen	Terminology
If the gas-monitoring screen is not backlit, press ⏻ once to turn on the backlight. Press ⏻ again to activate the operation-mode root menu. It will appear across the top of the gas-monitoring screen as shown here; the "View" tab is highlighted.	 	

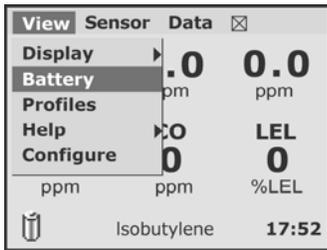| Press ⏻ to activate the "View" dropdown menu. | | Dropdown menu

Highlight bar

Item

Symbol |

NAVIGATION

Continuing with the sample screen from above, the instrument operator has already activated the operation-mode root menu and the dropdown menu for "View". The keypad is used to navigate as described below.

Keypad

Navigation

Sample screen	Button press	Result
	⏻	*Activate* the battery information screen.
	▲	Move the highlight bar *up*, from "Battery" to "Display".
	▼	Move the highlight bar *down*, from "Battery" to "Profile".
	◄	Move the highlight bar to the *left* tab, from "View" to "[X]".
	►	Move the highlight bar to the *right* tab, from "View" to "Sensor".

Other keypad functions

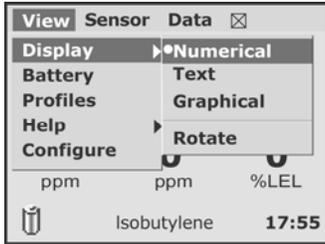| Button press	Result
Any button	Activate the backlight.
⏻	Start a task.
	Confirm or cancel an action.
	Change an item's status (for example, from on to off).
▲ or ▼	Enter text or values in a data field.
◄ or ►	Use as a cursor within a data field.

As shown below, the "Display" screens contain symbols that indicate navigation options, feature status, or data entry locations.

Display screen symbols

	Symbol	Meaning

View Sensor Data ⊠
Display ▶•Numerical
Battery Text
Profiles Graphical
Help ▶
Configure Rotate
ppm ppm %LEL
  Isobutylene 17:55

▶ Navigation

The "Display" menu item has an additional screen to which the instrument operator can navigate.

Action: Press ⏻ to see the next screen.

● or ✔ Enabled (on)

The screen symbols indicate the following:

- The numeric display style is enabled (on).
- The text and graphical display styles are disabled (off).
- The display screen is set to rotate (for use in environments where a different view is needed).

Actions:

Press ▲ or ▼ to move the highlight bar.

Press ⏻ to enable or disable the highlighted option.

☐ Data entry

Enter text or values in a data field.

Datalog Comments

Place your comments here.

OK Clear

Actions:

Press ▲ to increment to the next character (from "a" to "b").

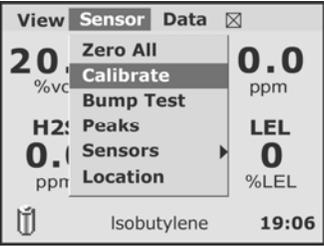Press ▼ to decrement to the previous character (from "b" to "a").

Press ▶ to create the next character.

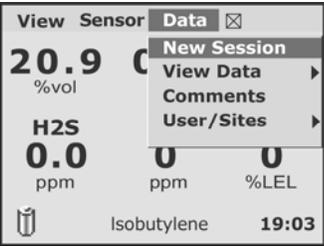Press ◄ to delete the last character entered.

LOCATING OPERATION-MODE FEATURES

From the root menu's three tabs, all features are accessible. Use the navigation instruction from above to activate the root menu, and then any tab's dropdown menu. The feature location list (below) shows the dropdown menus and describes the options that are accessible from each menu item.

Feature location list
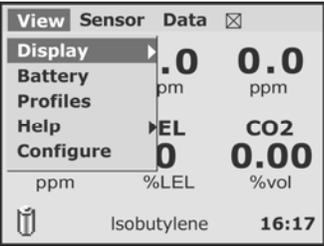
Dropdown menu	Menu item	Accessible options
View	Display	Choose a display style (numeric, text, or graph) for the gas-monitoring screen.
		Rotate the display 180°.
	Battery	Check the percentage of charge remaining.
	Profiles	Set the instrument (unit) to operate based on the settings of a specific profile.
	Help	Locate ISC contact information.
		View the unit's firmware version.
	Configure	Access the configuration mode.
		Warning: only qualified personnel should access and work in the configuration mode.
Sensor	Zero All	Simultaneously zero all installed sensors.
		See also "Sensors".
	Calibration	Calibrate all installed sensors (with the option to skip any sensor).
		See also "Sensors".
	Bump Test	Bump test all installed sensors (with the option to skip any sensor).
		See also "Sensors".
	Peaks	Simultaneously clear the peak

Feature location list

Dropdown menu	Menu item	Accessible options
		readings for all installed sensors.
	Sensors	Zero, calibrate, or bump test any individual installed sensor.
		View any sensor's most recent calibration date and its span trends.
		For a PID or LEL sensor, view its unit of measure along with its RF or correlation factor.
	Location	View a diagram of the installed sensor locations.
Data	New Session	Begin a new data log session.
	View Data	View a graph depicting gas readings for all installed sensors or for an individual sensor.
		View numeric or graphical displays of TWA or STEL readings for all toxic sensors or for an individual toxic sensor.
		View details for any of the 15 most recent alarm events.
	Comments	Enter comments to the data log.
	Users/Sites	View or set the current user (or current site).

Configuration

Access
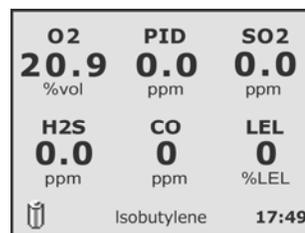
Locating Configuration-mode Settings

ACCESS

Using the instructions provided in Chapter 4, qualified personnel can navigate the menu system to enter and work in configuration mode. Menu system terminology is re-introduced below along with configuration-mode access instructions.
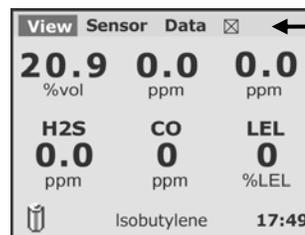
Entering configuration mode

Instruction	Display Screen	Terminology
If the gas-monitoring screen is not backlit, press ⏻ once to turn on the backlight.		
Press ⏻ once to activate the operation-mode root menu.		Operation-mode root menu
Press ⏻ to activate the "View" dropdown menu. Press ▼ or ▲ to move the highlight bar to "Configure". Press ⏻ to the enter configuration mode. If the unit does *not* have a set password, the user will enter the configuration mode; otherwise,		Dropdown menu Item Symbol Highlight bar
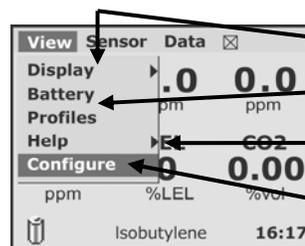
Entering configuration mode

Instruction	Display Screen	Terminology
the user will be prompted to enter the configuration-mode password.		

Press ▼ or ▲ to select a character.

Press ► to create the next character, or ◄ to delete the last.

Press 🔘 to highlight the password, then ▼ to highlight the "OK" command. Press 🔘.

Enter Password

1234567890

3- 10 characters

OK | Cancel
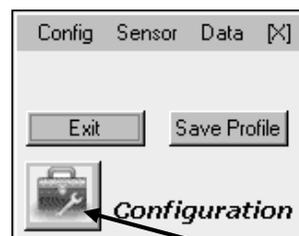
The configuration-mode root menu will be activated and will appear across the top of the display screen.

Press ▲ to move the highlight bar to the "Config" tab. (Press ◄ or ►to highlight another root-menu tab).

Press 🔘 to activate the highlighted tab's dropdown menu.

Config   Sensor   Data   [X]

Exit | Save Profile

Configuration

Configuration-mode root menu

All configuration-mode screens feature these treatments:

Yellow background

Tool icon

NOTE: Passwords are a minimum of three characters and a maximum of 10.

NOTE: If the user doesn't remember the password, entering "412" as the password and pressing ◄and ►simultaneously resets the password to nothing.

As shown below, display screens contain symbols that indicate navigation options, feature status, or data entry locations.

Display screen symbols
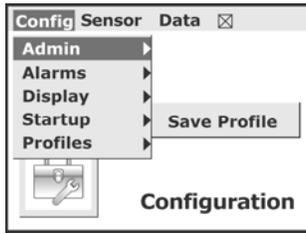
	Symbol	Meaning

| | ▶ | Navigation |

Each menu item has an additional screen to which the safety team member can navigate.

Action: Press 🔘 to see the next screen.
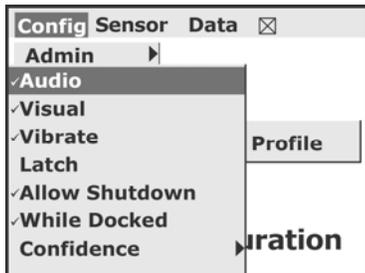
| | ● or ✔ | Enabled (on) |

The symbols shown here indicate the following:

- The "Audio", "Visual", and "Vibrate" alarms are enabled (on).

- The instrument operator is permitted to shut down the unit while it is in alarm.

- The alarms will turn on when the unit is docked.

- The alarm "Latch" is disabled (off).

Actions:

Press ▶ to move the highlight bar to the alarm options menu.

Press ▲ or ▼ to move the highlight bar among the alarm options.

Press 🔘 to enable or disable the highlighted option (or access the next screen for the "Confidence" indicator option).

Display screen symbols

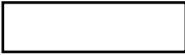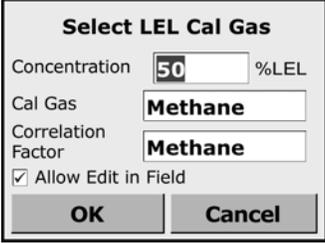| Symbol	Meaning
☐	Data entry

Enter text or values in a data field.

Actions:

Press ► or ◄ to move the highlight among data fields and buttons.

On a highlighted data field:

- Press ▲ (or ▼) to increment (or decrement) the value or to scroll among choices.

- Press ⏻ to confirm the value or selection.

- Press ► or ◄ to move the highlight bar to the next field or button.

LOCATING CONFIGURATION-MODE SETTINGS

From the configuration-mode root menu, all configurable settings are accessible. The settings location list (below) shows the dropdown menus and describes the options that are accessible from each menu item.

Settings location list
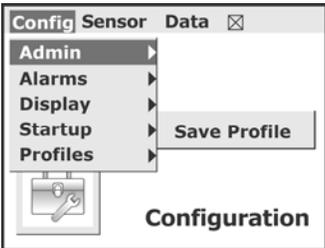
Dropdown menu	Item	Accessible settings
Config	Admin	Edit the settings for the backlight, clock, configuration-mode password, or company name display.
		Choose the display language.
		Reset the instrument to factory default settings.
	Alarms	Enable or disable each of these options: the alarm latching feature and the audio, visual, and vibration alarm indicators*.
		Disallow or allow operator-activated shutdown when the unit is in alarm.

Settings location list

Dropdown menu	Item	Accessible settings
		Disable or enable alarm indicators when the unit is docked.
		Enable the confidence indicator and select the indicator types (audio, visual, or vibrate). *It is possible to disable all three alarm indicators. As a precaution, a confirmation screen requires the safety team member to confirm or cancel the action. If confirmed, the operation-mode display will notify the instrument operator, in red type, that all alarm indicators are off ("ALARMS OFF!").
	Display	Set the gas-monitoring screen to include the time of day, the temperature, or both*.
		Set the gas readings display screen to include the PID RF, LEL correlation factor, or both*. *When *both* is selected, the display continuously shows a value, alternating between the two.
	Start-up	Set the unit to prompt the instrument operator, during the start-up sequence, to perform any or all of these tasks: zero, calibration, or bump test.
		Enable or disable the instrument self-test to perform automatically during the start-up sequence.
	Profiles	Enter new profiles, delete profiles, and set the current profile.

Settings location list

Dropdown menu	Item	Accessible settings
Sensor	Sensors	Enable or disable a sensor.
		Set alarm values (high, low, and STEL) and the TWA time base.
		Set calibration gas values and properties.
	Options	Enable or disable operation-mode access to these tasks: zero, calibration, clear peaks, and bump test.
		Choose the display preference for how the unit communicates calibration date information to its user: date of the next or last (most recent) calibration.
		Determine how the unit will behave when a calibration is overdue. Set the unit for automatic shutdown, continued operation, or continued operation with "cal overdue" notification to the instrument operator.
		Adjust the criteria (percentage of gas sensed and seconds) required for the unit to pass a bump test.
	RF List	Mark any response factor (RF) as a favorite.
		Create custom RFs and set the gas type and response factor for each.
	Location	View the unit's sensor location map.

Settings location list

Dropdown menu	Item	Accessible settings
Data	Options	Set the data log recording interval or adjust the TWA time period.
		Enable or disable operation-mode access to overwrite the data log and view data or events.
	Mode	Choose the data log operation mode: normal, on-alarm, or operator-activated snapshot.
	Clear	Clear the data log of current session data or all data.
	Users	Add or delete users. Set the current user. Enable or disable operation-mode access to change the current user.
	Sites	Add or delete sites. Set the current site. Enable or disable operation-mode access to change the current site.

After changes are made in configuration mode, they can be saved to the instrument profile or to another profile.

Exiting configuration mode

Dropdown menu	Item	Result
	Exit	Exit and "[x]" exits configuration mode and returns to the gas-monitoring display screen. Changes that have been made in configuration are saved to the instrument profile only; other profiles are not affected.
	Save Profile	Changes that have been made in configuration mode are saved to a
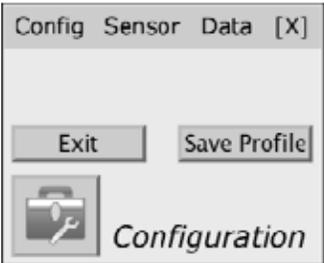
specific profile and *not* to the instrument profile. The unit will prompt the safety team member to specify the profile name.

NOTE: Unless specified otherwise, configuration-mode display screens time out after 90 seconds. When activated, the main configuration screen remains on for five minutes.

NOTE: If the instrument is still reading gas while in configuration mode, and there is an alarm, the instrument returns to the gas-monitoring display screen.

Tasks

Power assessment

Zero

Calibrate

Bump Test

POWER ASSESSMENT

The Battery icon on the gas-readings display screen visually reflects the current status of the battery life. Depending on the installed LCD, one of two different icons may appear for each charge level.

Charge remaining	Icon (color)	Icon (color)
>100%	(blue)	(blue)
>75%	(blue)	(blue and red)
>50%	(blue)	(blue and gray)
>25%	(blue)	(yellow and gray)
>5%	(yellow)	(red and gray)

O2	PID	SO2
20.9	0.0	0.0
%vol	ppm	ppm
H2S	CO	LEL
0.0	0	0
ppm	ppm	%LEL
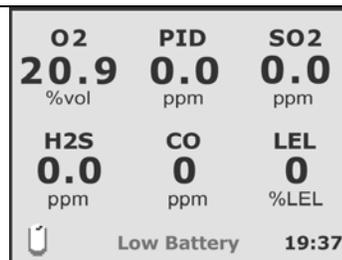
Low Battery   19:37

NOTE: If the battery life remaining is less than one hour, the battery icon flashes on the display and has an audible battery low alarm. If the run time is less than 10 minutes, the instrument alerts the user of impending shutdown by showing "Low Battery" on the lower central part of the display.

ZERO

From the operation-mode root menu, activate the "Sensor" dropdown menu. Highlight the "Zero All" item and press ●. The unit aks the instrument operator to confirm the zero request.

- If "Cancel" is selected, the user is returned to the gas-monitoring display screen and the zeroing is

View	**Sensor**	Data	⊠

20.   **Zero All**   0.0
%vc   Calibrate   ppm
       Bump Test
CO   Peaks   CO2
0   Sensors   ▶   0.00
ppm   Location   %vol

15:09
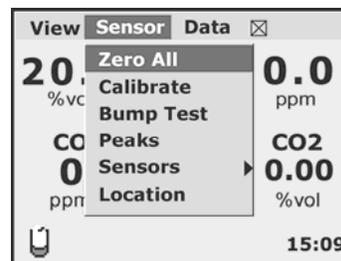
skipped.

- If "OK" is selected, the zeroing of the sensors starts.

If there is a CO_2 sensor present in the instrument, it is zeroed last. Zero air must be applied to zero a CO_2 sensor. The instrument prompts the user to apply zero air. If the user selects "OK", the CO_2 sensor starts zeroing.

By pressing ◄ or ► the highlight bar moves from the "OK" button to the "Cancel" button and back again. If the user selects "Cancel", the CO_2 sensor is not zeroed.

If there is an oxygen sensor installed in the instrument, it is calibrated during the zeroing operation.

When the zero is finished, the results screen is displayed.

Selecting "OK" returns the instrument to the gas-monitoring screen. If "OK" is not selected, the instrument asks if the user wants to calibrate after a 15 second time-out.
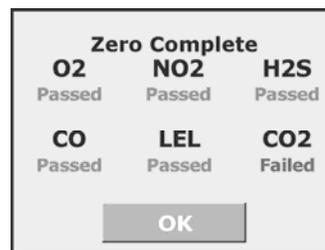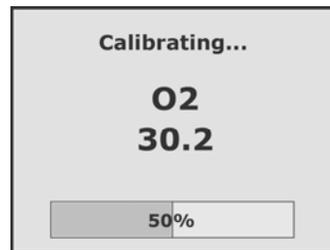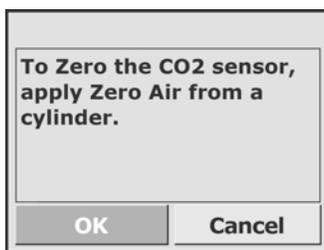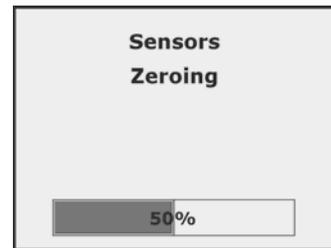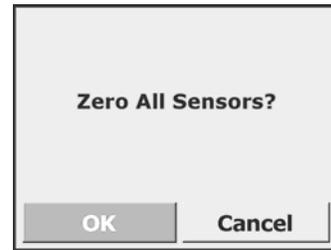
CALIBRATE

The instrument alarms are deactivated during the calibration to save battery life. If "Calibrate" is selected, the instrument displays the confirmation screen shown below. If "Cancel" is selected, the user is returned to the gas-monitoring display screen.

If the user selects "OK", all the installed sensors are zeroed first (following the "Zero All" steps outlined above) and then calibrated. After the zero, the results are shown for 5 seconds and then the calibration of the first sensor begins.

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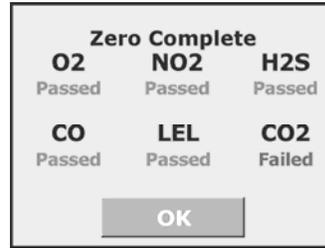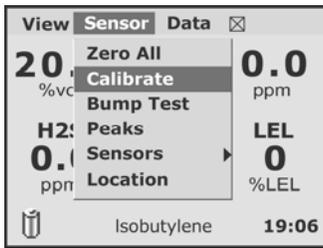
The screen to alert the user to connect gas to the instrument is then shown. Once the sensor starts to read gas, the calibration begins. The user has 5 minutes to apply gas before the calibration times out. Gas should be applied at a flow rate of 0.5 lpm. If the user chooses to "Skip" a sensor, the instrument will move to the next sensor. The "Abort" option aborts the calibration and shows the "Calibration Complete" screen.
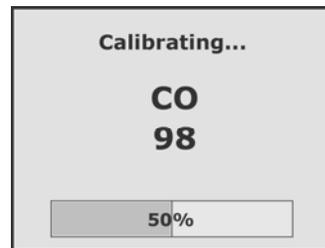
When the calibration is finished, the following screen shows the passed, marginal, skipped, and failed sensors, when six sensors are installed.
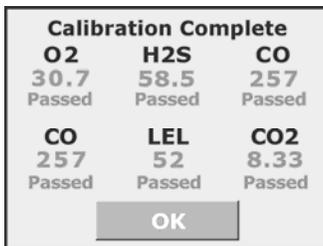
BUMP TEST

From the operation-mode root menu, activate the "Sensor" dropdown menu. Highlight the "Bump Test" item and press 🔘.

The unit asks the instrument operator to confirm the bump test request. If "Cancel" is selected, the user is returned to the gas-monitoring display screen. If the user selects "OK", all the installed sensors are bump tested, starting with the first sensor.
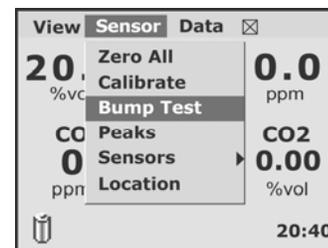
The screen to alert the user to apply gas to the instrument is then shown. The user has a fixed number of seconds to apply gas and select "Start" before the

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bump times out. If the user selects "Skip", the bump for this particular sensor is not done. The instrument moves on to the next sensor.

If the user selects "Start", the bump test is started for this sensor. The sensor must reach a gas reading of 50% or greater (user selectable in configuration menu) of the applied gas (calibration) concentration within 60 seconds (user selectable in configuration menu) to pass. Once the sensor has done so, the word "Pass" is displayed for 3 seconds before the instrument moves on to the next sensor.

After all the sensors installed in the instrument have been bump tested, a result screen is shown. The user must acknowledge this screen to continue, by selecting the "OK" button.

Bump Test	Apply	Bump Test Results
All Sensors?	25.0 ppm H2S	O2: Passed H2S: Passed CO: Passed CO: Passed LEL: Passed CO2: Passed
OK Cancel	OK Cancel	OK

If all the sensors have passed the bump test, the instrument goes to the gas-monitoring display screen. If any sensor failed the bump test, after viewing and acknowledging the results, the instrument asks the user to continue, or calibrate the failed sensor(s). If the user selects the Cancel button, the sensor is not calibrated and the instrument moves on to the next sensor in the list. If the user selects "OK", the failed sensor is calibrated.

If there is more than one sensor that failed the bump test, they are calibrated in order (top row left to right, bottom row left to right on the gas-monitoring display screen), one at a time – each time prompting the user to choose whether to calibrate the sensor or not.

Specifications and Warranty

7

Batteries

Sensors

LEL Data

Warranty

BATTERIES

Battery properties

	Run time* (hours)	Recharge time (hours)
Li-ion battery pack		
MX6 iBrid without pump	24	< 7
MX6 iBrid with pump	12	< 7
Extended range Li-ion battery pack		
MX6 iBrid without pump	36	< 8
MX6 iBrid with pump	20	< 8
Alkaline battery pack		
MX6 iBrid without pump	10	N/A
MX6 iBrid with pump	5	N/A

*Typical run time for fully charged battery operating at room temperature in a unit with CO, O2, LEL (catalytic), and H2S installed sensors.

N/A = not applicable.

SENSORS

Sensor specifications

Sensor Category / Gas Names	Abbreviation	Sensor technology[1]	Sensor properties				Accuracy		Response time (typical)	
			Measurement range	Measurement resolution	Sensor temperature range[2]	Sensor RH range[2]	At temperature of calibration	Over full sensor temperature and RH ranges	T50	T90
			(%vol, %LEL, or ppm)		degrees (°)	(%)	(%)	(%)	Seconds (s)	
Oxygen										
Oxygen	O_2	E	0% to 30% vol	0.10% vol	-20°C to 55°C (-4°F to 131°F)	5 to 95	± 0.5	± 0.8	5	10
Combustible										
Combustible	LEL	C	0% to 100% LEL	1% LEL	-20°C to 55°C (-4°F to 131°F)	15 to 95	± 5.0	± 15.0	15	35
Combustible	LEL	IR	0% to 100% LEL	1% LEL	-20°C to 50°C (-4°F to 122°F)	0 to 95	± 5.0	± 15.0	15	35
Methane	CH_4	IR	0% to 100% LEL	1% LEL	-20°C to 50°C (-4°F to 122°F)	0 to 95	± 5.0	± 15.0	10	25
Methane	CH_4	C	0% to 5% vol	0.01% vol	-20°C to 55°C (-4°F to 131°F)	15 to 95	± 5.0	± 15.0	15	35
Toxic										
Ammonia[3]	NH_3	E	0 to 500 ppm	1.00 ppm	-20°C to 40°C (-4°F to 104°F)	15 to 95	± 5.0	± 15.0	30 s	80 s
Carbon Dioxide	CO_2	IR	0% to 5% vol	0.01% vol	-20°C to 50°C (-4°F to 122°F)	0 to 95	± 5.0	± 15.0	10 s	25 s
Carbon Monoxide	CO	E	0 to 1,500 ppm	1.00 ppm	-20°C to 50°C (-4°F to 122°F)	15 to 90	± 5.0	± 15.0	15 s	50 s
Carbon Monoxide	CO	E	0 to 9,999 ppm	1.00 ppm	-20°C to 50°C (-4°F to 122°F)	15 to 90	± 5.0	± 15.0	15 s	50 s

Sensor specifications

Sensor Category / Gas Names	Abbreviation	Sensor technology[1]	Measurement range	Measurement resolution	Sensor temperature range[2]	Sensor RH range[2]	At temperature of calibration	Over full sensor temperature and RH ranges	T50	T90
			(%vol, %LEL, or ppm)		degrees (°)	(%)	(%)	(%)	Seconds (s)	
Carbon Monoxide (Hydrogen Low)	CO/ H2 Low	E	0 to 1,000 ppm	1.00 ppm	-20°C to 50°C (-4°F to 122°F)	15 to 90	± 15.0	± 15.0	15 s	30 s
Carbon Monoxide and Hydrogen Sulfide (COSH sensor)	CO	E	0 to 1,500 ppm	1.00 ppm	-20°C to 50°C (-4°F to 122°F)	15 to 90	± 5.0	± 15.0	15 s	50 s
	H_2S	E	0 to 500 ppm	0.10 ppm	-20°C to 55°C (-4°F to 131°F)	15 to 95	± 5.0	± 15.0	15 s	50 s
Chlorine	Cl_2	E	0 to 50 ppm	0.10 ppm	-20°C to 40°C (-4°F to 104°F)	15 to 90	± 10.0	Varies*	25 s	120 s

*For the Cl_2 sensor, accuracy over the "full sensor temperature and RH ranges" is based on temperature range: ± 15.0% from -20°C to 40°C (-4°F to 104°F); and ± 25.0% from 41°C to 50°C (106°F to 122°F).

Sensor Category / Gas Names	Abbreviation	Sensor technology	Measurement range	Measurement resolution	Sensor temperature range	Sensor RH range	At temperature of calibration	Over full sensor temperature and RH ranges	T50	T90
Chlorine Dioxide	ClO_2	E	0 to 1 ppm	0.01 ppm	-20°C to 40°C (-4°F to 104°F)	15 to 95	± 5.0	± 15.0	30 s	120 s
Hydrogen	H_2	E	0 to 2,000 ppm	1.00 ppm	-20°C to 50°C (-4°F to 122°F)	15 to 90	± 5.0	± 15.0	35 s	120 s
Hydrogen Chloride[3]	HCl	E	0 to 30 ppm	0.10 ppm	-20°C to 40°C (-4°F to 104°F)	15 to 95	± 5.0	± 15.0	50 s	150 s
Hydrogen Cyanide	HCN	E	0 ppm to 30 ppm	0.10 ppm	-40°C to 40°C (-40°F to 104°F)	15 to 90	± 5.0	± 15.0	25 s	80 s
Hydrogen Sulfide	H_2S	E	0 to 500 ppm	0.10 ppm	-20°C to 50°C (-4°F to 122°F)	15 to 90	± 5.0	± 15.0	15 s	50 s
Nitrogen Dioxide	NO_2	E	0 to 150 ppm	0.10 ppm	-20°C to 50°C (-4°F to 122°F)	15 to 90	± 5.0	± 15.0	15 s	50 s
Nitric Oxide[3]	NO	E	0 to 1,000 ppm	1.00 ppm	-20°C to 50°C (-4°F to 122°F)	15 to 90	± 5.0	± 15.0	15 s	50 s

Sensor specifications

Sensor Category Gas Names	Abbreviation	Sensor technology[1]	Measurement range	Measurement resolution	Sensor temperature range[2]	Sensor RH range[2]	At temperature of calibration	Over full sensor temperature and RH ranges	T50	T90
			Sensor properties				**Accuracy**		**Response time** (typical)	
			(%vol, %LEL, or ppm)		degrees (°)	(%)	(%)	(%)	Seconds (s)	
Phosphine	PH$_3$	E	0 to 5 ppm	0.01 ppm	-20°C to 40°C (-4°F to 104°F)	20 to 95	± 5.0	± 15.0	10 s	30 s
Phosphine	PH$_3$	E	0 to 1,000 ppm	1.00 ppm	-20°C to 50°C (-4°F to 122°F)	15 to 90	± 5.0	± 15.0	10 s	50 s
Sulfur Dioxide	SO$_2$	E	0 to 150 ppm	0.10 ppm	-20°C to 50°C (-4°F to 122 °F)	15 to 90	Varies **	± 15.0	10 s	30 s

**For the SO$_2$ sensor, accuracy at the "temperature of calibration" is based on measurement range: ± 5.0% or 1 ppm (whichever is greater) from 0 ppm to 20 ppm; and ± 15.0% for 21 ppm to 150 ppm.

| Volatile Organic Compounds | VOC | 10.6 eV (PID) | 0 to 2,000 ppm | 0.10 ppm | -20°C to 50°C (-4°F to 122°F) | 0 to 90 | ± 10.0 | ± 20.0 | 15 s | 50 s |

[1] Sensor technology: "C" stands for catalytic, "E" for electrochemical, "IR" for infrared, and "PID" for photoionization detector.
[2] During continuous operation.
[3] These sensors may become unstable if the battery is removed from the instrument or after the low battery warning is activated. If either incidence occurs, change the battery (or re-install the existing battery if it has suitable life remaining), then power the monitor ON then OFF, and allow at least 24 hours for the sensors to stabilize.

LEL DATA

LEL correlation factors for combustible gases

Sample gas*	LEL (% vol)	Butane	Hexane	Hydrogen	Methane	Pentane	Propane
				LEL correlation factors Calibration gas			
Acetone	2.5%	1.00	0.70	1.70	1.70	0.90	1.10
Acetylene	2.5%	0.70	0.60	1.30	1.30	0.70	0.80
Benzene	1.2%	1.10	0.80	1.90	1.90	1.00	1.20
Butane	1.9%	1.00	0.58	1.78	1.67	0.83	1.03
Ethane	3.0%	0.80	0.60	1.30	1.30	0.70	0.80
Ethanol	3.3%	0.89	0.52	1.59	1.49	0.74	0.92
Ethylene	2.7%	0.80	0.60	1.40	1.30	0.70	0.90

LEL DATA

LEL correlation factors for combustible gases

Sample gas*	LEL (% vol)	LEL correlation factors Calibration gas					
		Butane	Hexane	Hydrogen	Methane	Pentane	Propane
Hexane	1.1%	1.71	1.00	3.04	2.86	1.42	1.77
Hydrogen	4.0%	0.56	0.33	1.00	0.94	0.47	0.58
Isopropanol	2.0%	1.10	0.90	2.00	1.90	1.00	1.20
Methane	5.0%	0.60	0.35	1.06	1.00	0.50	0.62
Methanol	6.0%	0.60	0.50	1.10	1.10	0.60	0.70
Nonane	0.8%	2.22	1.30	3.95	3.71	1.84	2.29
Pentane	1.4%	1.21	0.71	2.15	2.02	1.00	1.25
Propane	2.1%	0.97	0.57	1.72	1.62	0.80	1.00
Styrene	0.9%	1.30	1.00	2.20	2.20	1.10	1.40
Toluene	1.1%	1.53	0.89	2.71	2.55	1.26	1.57
Xylene	1.1%	1.50	1.10	2.60	2.50	1.30	1.60
JP-4	—	—	—	—	—	1.20	—
JP-5	—	—	—	—	—	0.90	—
JP-8	—	—	—	—	—	1.50	—

NOTE: The table above provides the LEL for select combustible gases*. It also provides correlation factors that help the safety technician and instrument operator determine the actual percentage LEL when the sample gas differs from the gas that was used to calibrate the unit.

For example, if the unit reads 10% LEL in a *pentane* atmosphere, and was calibrated to *methane*, the actual percentage LEL is determined as follows:

1. Locate the table cell where the sample gas (pentane) intersects with the calibration gas (methane).

2. Multiply the cell's value (2.02) by the unit's LEL reading (10%) to calculate the actual concentration of 20.2% LEL.

* The combustible gas list is not a comprehensive list of all combustible gases that can be detected by the MX6. For additional information about combustible gas detection and the MX6, contact the ISC Technical Service department.

WARRANTY

Industrial Scientific Corporation's MX6 iBrid™ portable gas monitors are warranted to be free from defects in material and workmanship under normal and proper use and service for as long as the instrument is supported by Industrial Scientific Corporation.

The above warranty does not include sensors, battery packs, and internal pumps, which are warranted to be free from defects in material and workmanship

for 24 months from date of shipment, except where otherwise stated in writing in Industrial Scientific literature accompanying the product.

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MANUFACTURER DECLARATION OF CONFORMITY
Déclaration de Conformité Constructeur

CE

The company **Industrial Scientific Corporation**, Oakdale, Pennsylvania USA, declares that the following new material intended for use in Explosive Atmospheres:
*(La société **Industrial Scientific Corporation**, Oakdale, Pennsylvania USA, atteste que le matériel neuf destiné à être utilisé en Atmosphères Explosives désigné ci-après :)*

Gas detector *(Détecteur de gaz)* MX6 with optional Sampling Pump SP6

comply with the requirements of the following European Directives :
(est conforme aux exigences des Directives Européennes suivantes:)

I) The European Directive ATEX 94/9/CE of 23/03/94: Explosive Atmospheres
Directive Européenne ATEX 94/9/CE du 23/03/94 : Atmosphères Explosives

A) No. of EC type examination certificate: **DEMKO 07 ATEX 0626395X**
(N° Attestation CE de Type du matériel:)

Issued by the Notified Body no. 0539:   UL International DEMKO A/S, LYSKEAR 8
(Délivrés par l' Organisme notifié sous le numéro 0539)   P.O. Box 514, DK – 2730, HERLEV, DENMARK

B) No. of EC type examination certificate: **INERIS 08 ATEX 0026X**
(N° Attestation CE de Type du matériel:)   **INERIS 10 ATEX 0027X**

Issued by the Notified Body no. 0080:   INERIS, rue Taffanel, 60550 Verneuil
(Délivrés par l' Organisme notifié sous le numéro 0080)   en Halatte, France

Reference European Standards *(Normes européennes de référence)*:
Rules of construction *(Règles de construction)* :   EN60079-0, EN60079-1, EN60079-11, EN50303
                                                            EN60079-26, EN60079-29-1, EN50104, EN50271

Category *(Catégorie)*: ⟨Ex⟩ II 1G   ⟨Ex⟩ II 2G I M1/ M2 (with IR module)
                         Ex ia IIC T4 Ga   Ex ia d I
                         T_a: -20°C to 55°C (Li-Ion Battery) T_a: -20°C to 55°C (Li-Ion Battery)
                         T_a: -20°C to 40°C (Alk Battery) T_a: -20°C to 40°C (Alk Battery)
                                                                EN60079-29-1, EN 50104

Production Quality Assurance Notification No. of the Oakdale factory   SIRA 00 ATEX M0080
(N° de la Notification Assurance Qualité de Production de l'usine de Oakdale)

Issued by the Notified Body no. 0518:   SIRA Certification Services, Rake Lane
(Délivrés par l'Organisme notifié sous le numéro 0518)   Eccleston, Chester CH4 9JN, UK

II) The European Directive EMC 2004/108/EC: Electromagnetic Compatibility
Directive Européenne CEM 2004/108/CE : Compatibilité Electromagnétique

Harmonised applied standards: EN 50270
(Normes harmonisées appliquées)

On behalf of the manufacturer   On behalf of the manufacturer representative in EC   The ATEX Authorized Representative
Pour le fabricant   *Pour le représentant du fabricant dans l'UE*   *La Personne Autorisée ATEX*

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                                                                                   30 May 2012

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