VENTIS™
PRO SERIES

Reference Guide

Short-form instruction
for powering on and using the
Ventis™ Pro4 Multi-Gas Monitor and the
Ventis™ Pro5 Multi-Gas Monitor

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INDUSTRIAL SCIENTIFIC

Industrial Scientific Corporation, Pittsburgh, PA USA
Industrial Scientific Co., Ltd. Shanghai, China

Revision 3

www.indsci.com/ventispro

Contents

List of abbreviations

DSSAC	Docking Station Software Admin Console
ppm	parts per million
TWA	time-weighted average
STEL	short-term exposure limit

Thank you for choosing the Ventis™ Pro Series from Industrial Scientific Corporation!

Attention Safety Team

Reference Guide content is limited to abbreviated instruction for powering on and using the Ventis™ Pro4 Multi-Gas Monitor and Ventis™ Pro5 Multi-Gas Monitor. Derived from parts of the *Product Manual**, it is not a substitute for the manual. Use this guide, the product manual, and other Industrial Scientific services—in combination with your own resources—to prepare workers for successfully using the instruments in your gas-monitoring environment.

Get off to a good start with your new Ventis Pro Series instrument. Before using it for the first time:

- ✓ Read and understand the *Product Manual**.
- ✓ Review the unit's settings and adjust them as needed.
- ✓ Train instrument users.
- ✓ Charge the unit's battery.
- ✓ Calibrate the instrument, then complete a bump test.

*The *Product Manual* is available online at www.indsci.com/ventispro.

Need help?

Contact the gas detection experts at Industrial Scientific!

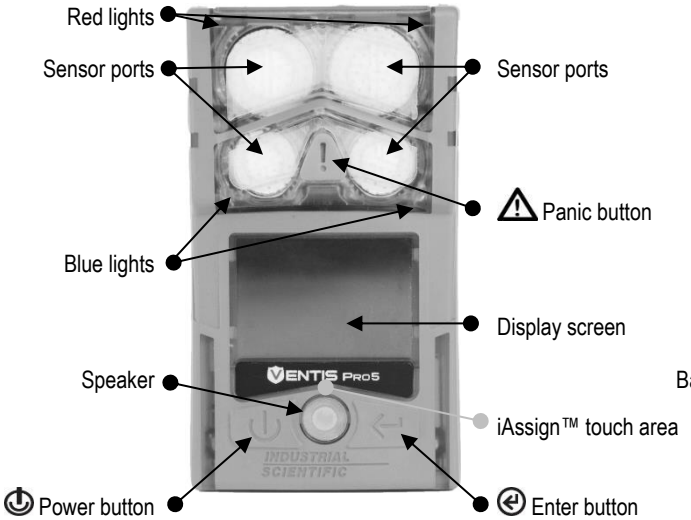
- Technical Support
- Training
- Ask Dave

www.indsci.com

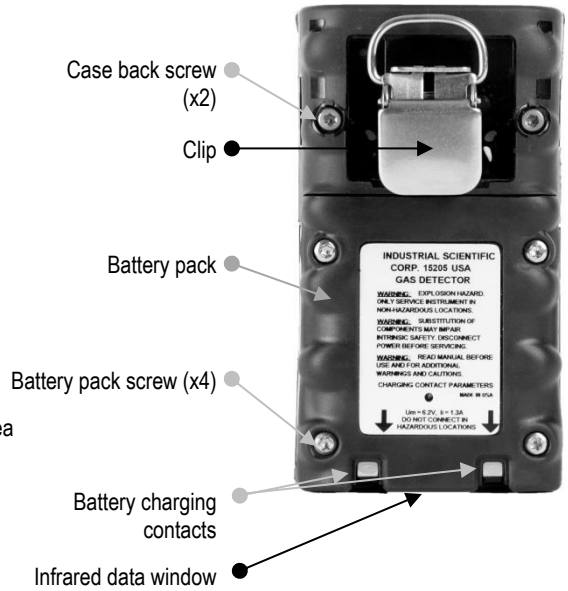
Hardware Overview

Ventis Pro Series diffusion instrument (Ventis Pro5 shown)

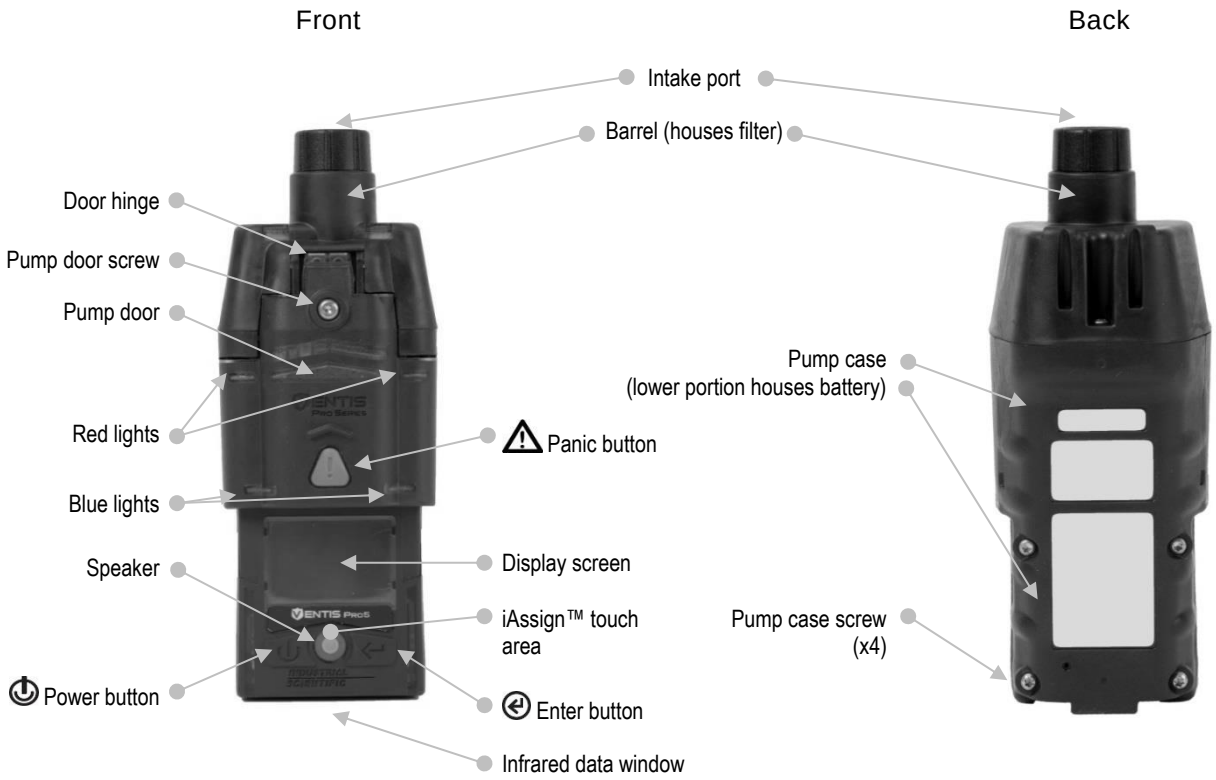
Front



Back



Ventis Pro Series aspirated instrument (Ventis Pro5 shown)



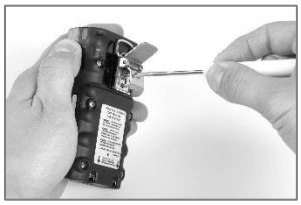
Pump Installation and Preparation

If the instrument will be used without a pump, skip to page 6.

To use the instrument with its integrated pump, complete one or both instruction sets below.

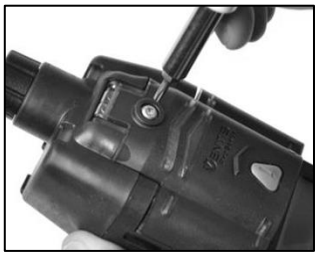
- If the pump is *not* installed, follow the instructions below for both pump installation and pump preparation.
- If the pump *is* installed, follow the instruction below for pump preparation only.

Pump installation

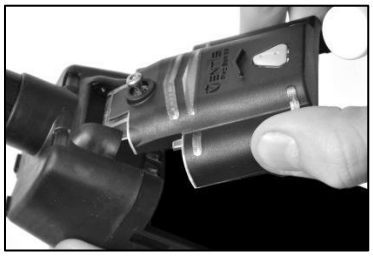


Unscrew and remove the belt clip. Store the clip, screw, and washer for future use.

Unscrew, lift, and remove the battery pack from the diffusion instrument; store it for future use.



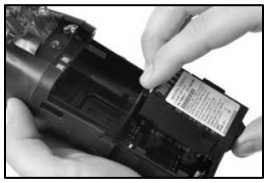
Loosen the pump door screw.



Slide the pump door down; lift it to open.

For information about confined space entry, visit www.indsci.com.

Pump installation (continued)



Install a compatible extended-run-time battery in the lower receptacle of the pump case. When correctly installed, the battery's label will show.

Place the instrument in the pump case as shown.

Lower the pump door. Slide it into its fully closed, clicked-shut position.

Tighten the pump door screw.

Pump preparation

Attach one end of the sample tubing to the pump inlet's nipple; attach the other end to a compatible water stop.

At each end, push on the tubing to ensure the connecting part is fully inserted into the tubing (approximately .635 cm [.25 "]) . To test for a firm connection, gently pull on the tubing.

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For remote sampling applications that require the use of a probe, contact Industrial Scientific or an authorized distributor.

Power On

To power on the instrument, press ⏻ for approximately three seconds and release it when the blue lights flash.

The instrument will complete its *self-test**; check for these items:

- The blue and red lights flash.
- All pixels are functional on the visual test screens, which read "Industrial Scientific".
- The instrument vibrates and beeps.

Next—on the display screen—watch the *start-up sequence* for instruction, information, and access to utilities such as the zero utility. The start-up sequence will vary based on instrument settings; some of the more commonly accessible items are shown below. If the instrument has a pump installed, the start-up sequence will include a pump test; watch the display screen for instruction (see page 8).

*If the instrument or the operator identifies a failure, contact Industrial Scientific or an authorized distributor for assistance.

Start-up information

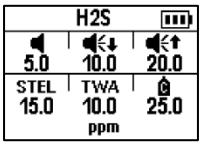
Assignment information

Indicates the company, person (user), and location (site) to which the instrument is assigned.

Maintenance information (dock and calibration shown)

The dock information (above left) indicates the maintenance is due in the future ("days until"). The calibration information as shown here indicates when the maintenance was last performed ("days since").

Gas information (H_2S shown in ppm)



Provides setpoint values (from left to right).

Top row: gas present alert, low alarm, and high alarm.

Bottom row: STEL alarm, TWA alarm, and calibration gas concentration.

Start-up utilities and preparation

Start-up message

Read and understand the message.

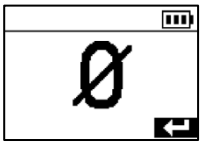
Acknowl-edge message.

Compliance check
(German-language instruments only)

Answer "no".

Answer "yes".

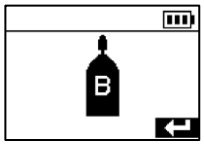
Zero utility



Skip the utility: wait 15 seconds.

Start the utility.

Bump test utiliy



Skip the utility: wait 15 seconds.

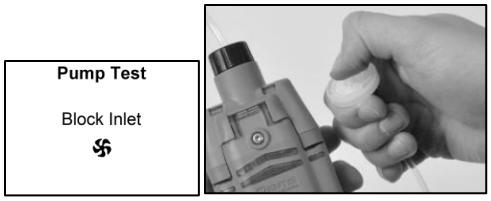
Start the utility.

If a pump has been installed and the settings include the zero utility, the pump test will begin *before* the zero utility. See page 8 for full pump-test instruction.

Complete an instrument self-test any time during your workday: when the instrument is on, simultaneously press and hold ↵ and ⏻.

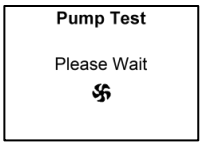
Pump test

Block inlet



When prompted, use a thumb to block the end of the sampling line.

Wait



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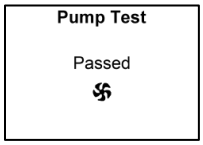
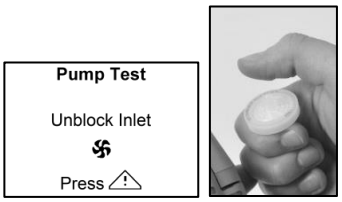
While the test is in progress, the display screen will ask the instrument operator to wait. Next, the test results will be displayed as "Passed" or "Failed".

Test results: Passed



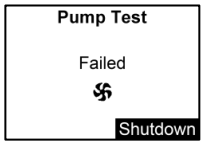


Remove thumb from the water-stop opening.

Restart the pump: press ⚠. It may take several seconds for the pump to restart.

Test results: Failed*

Remove thumb from the water-stop opening.



— ⏎

Power off the instrument.

*A pump test failure may indicate a problem somewhere in the sampling line. Check and correct for cracks or other damage, debris, and improper installation in these areas: all sampling line connections, and the pump's inlet cap, inlet barrel, and dust filter.

User-site Assignments

Use iAssign™ tags to change the instrument's user-site assignments. Each tag can contain a user name, site name, or both.

Note: An instrument's settings may not permit the use of iAssign technology.

iAssign tag

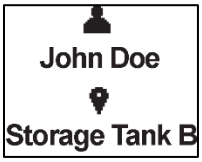
iAssign touch area

To assign the instrument to the user-site data that is on an iAssign tag, touch the tag once to the instrument's iAssign touch area.

To remove the assignment, use any one of these options:

- Touch the same tag to the instrument's iAssign touch area.
- Touch a different tag to the instrument's iAssign touch area.
- Power off the instrument.
- Dock the instrument to synchronize instrument settings with their current values in iNet, DSSAC, or Accessory Software.

Results (confirmation and failure shown)



Watch and listen for confirmation or failure indicators.

Confirmation
- ascending tone
- blue lights
- current user and site message

Failure
- descending tone
- red lights
- "Invalid Tag" message

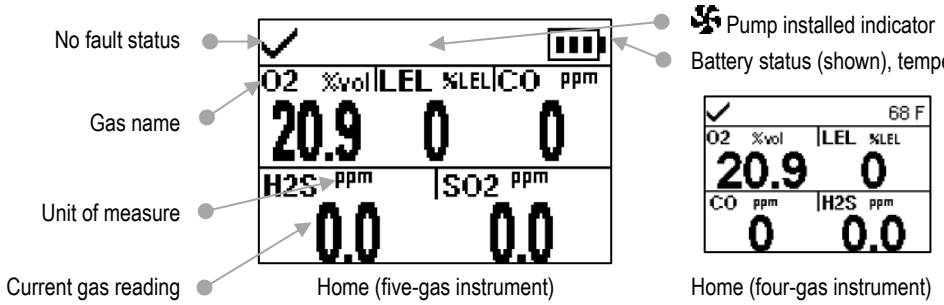
If the assignment failed, it can be tried again.

For more information on assignments and iAssign technology, see the *Product Manual* at www.indsci.com/ventispro.

Instrument Operation

Gas readings will generally look like those shown below for a five-gas instrument (enlarged for detail) and a four-gas instrument. This information screen is referred to as “Home”. During operation, the instrument will display the home screen unless the user navigates to another display screen or the instrument is communicating alarm, warning, or indicator details.

Home

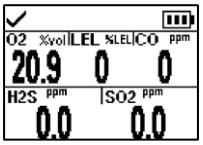
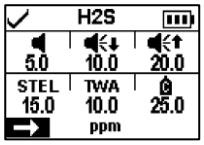


Home (five-gas instrument) Home (four-gas instrument)

To operate the instrument, press its buttons as follows:

- View information and access utilities.
- Start a utility or view details.
- Turn on (or off) the instrument's high alarm.

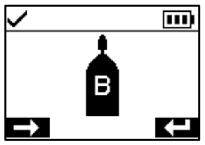
Information and utilities that are accessible during operation will vary based on instrument settings. Some of the more commonly accessible items are shown below where instruction is provided for completing each type of utility: maintenance (bump test, zero, and calibration) and clear readings (peak, TWA, and STEL).

Home	Assignment information	Maintenance information (dock and calibration shown)		Gas information (shown here for H_2S in ppm)
				
Next display screen.	Next display screen.	Next display screen.	View span reserve percentage values.	Next display screen.	View span reserve percentage values.	Next display screen.
Displays each sensor's current gas reading.	Indicates the company, person (user), and location (site) to which the instrument is assigned.	The dock information (above left) indicates the maintenance is due in the future ("days until"). The calibration information as shown here indicates when the maintenance was last performed ("days since"). To view optional information (span reserve percentages), press ↵.		Provides setpoint values (from left to right). Top row: gas present alert, low alarm, and high alarm. Bottom row: STEL alarm, TWA alarm, and calibration gas concentration.		

Span reserve percentage is an indicator of a sensor's remaining life. When the value is less than 50%, the sensor will no longer pass calibration.

Maintenance example

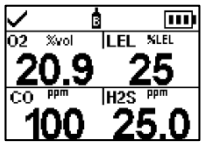
Bump test utility



Skip the utility: wait 15 seconds.

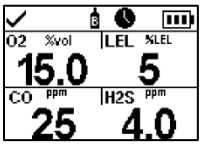
Start the utility.

Apply gas (quick bump test shown)



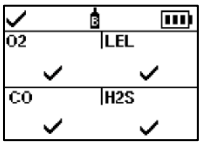
The sensors are set to respond to the displayed calibration gas concentrations. The instrument will wait approximately five minutes for the application of the required gas concentrations.

Progress



The values increase as the detected gas levels increase.

Results

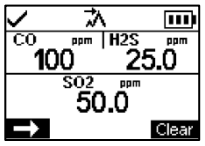


✓ means the sensor passed.

✗ means the sensor failed.

Clear readings example

Peak readings



Next display screen.

Clear the readings.

Alarms, Warnings, and Indicators

Alarms notify the instrument user of danger.

Warnings notify the user of a condition that needs attention.

Indicators notify the user of a status (e.g., confidence indicator).

Take seriously all alarms, warnings, and indicators, and respond according to company policy.

Alarms

The Ventis Pro Series instruments have alarms of two intensities, high and low. When all alarm signals* are on:

- The *high* alarm is bright red in color; it uses two different sounds and a vibration. It is fast-paced.
- The *low* alarm is similar to the high alarm, but includes blue as well as bright red light. It is medium-paced.

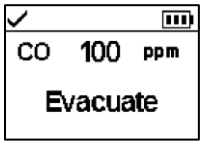
*Signals (visual, audible, and vibration) vary based on instrument settings.

Alarms are persistent. They turn off when the alarm-causing event is no longer detected; however, if the instrument's alarm-latch setting is on, an alarm will remain on until the user presses ⏎ to turn it off.

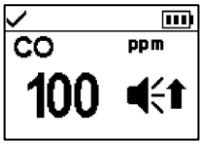
Information about gas alarms is presented in different formats on the display screen as shown below for an instrument that is in high-alarm caused by the CO sensor's reading, which is now at 100 ppm.

High alarm (gas event shown)

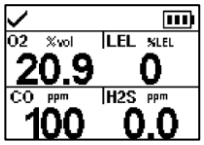
Instruction format* (Evacuate shown)



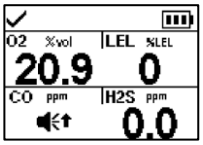
Full screen alarm format*



Readings



Event type



*The instrument will display only one of these two formats based on the unit's settings.

Display screens shown above feature the icon (🔊↑) for a high-alarm gas event. When another type of event causes an alarm, the instrument's display will feature a different icon. Alarms are described below for gas and nongas events.

Alarms (gas events)

Icon	Alarm level	Alarm event	Description
OR, -OR	High	Gas present (over-range)	The detected gas concentration is outside the sensor's measuring range.
🔊↑	High	Gas present (high-alarm)	The detected gas concentration exceeds the high-alarm setpoint.
STEL	High	STEL	The cumulative measure of detected gas exceeds the STEL setpoint.
🔊↓	Low	Gas present (low-alarm)	The detected gas concentration exceeds the low-alarm setpoint.
TWA	Low	TWA	The cumulative measure of detected gas exceeds the TWA setpoint.

Alarms (nongas events)

Icon	Alarm level	Alarm event	Description
 MAN DOWN	High	Man down	The instrument has not moved for the set period of time. To turn off the alarm, press and hold ⏎.
 PANIC ALARM	High	Panic	The user has pressed the instrument's panic button and held it long enough to turn on the panic alarm. To turn off the alarm, press and hold ⏎.
PUMP FAULT	High	Pump fault	The pump is not operational. A pump fault may indicate a problem somewhere in the sampling line.
ERROR 408	High	System	The instrument is in failure (error code 408 shown here) and is not operational.
	High	Critical low battery	The instrument has shut down and is not operational.

Warnings

Warnings turn on and off repeatedly. The more urgent the warning, the shorter the time between on-off occurrences: a warning that repeats every two seconds is more urgent than a warning that repeats every thirty seconds. Warnings persist until the issue is resolved.

When all signals* are on, a warning appears as a short burst of red and blue light mixed with sound and vibration.

Warning events are defined below, followed by their display screen reproductions.

*Signals (visual, audible, and vibration) vary based on instrument settings.

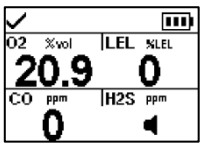
Warnings

Icon	Warning frequency	Warning event	Description
 MAN DOWN	Every 2 seconds	Man down	The instrument has not moved for the set period of time. To turn off the warning, move the instrument.
	Every 8 seconds	Gas alert	A detected gas concentration may be approaching alarm levels. To turn off the warning, press and hold ↵.
↓O2	Every 10 seconds	LEL-Low O_2	LEL and O_2 sensors are installed and the concentration of O_2 is insufficient for LEL sensor functionality.
F	Every 15 seconds	Sensor failure	If the sensor has failed a procedure, this icon will alternate with text that indicates what failed (**CAL**, **BUMP**, or **Ø**).
	Every 30 seconds	Instrument maintenance overdue (bump test shown)	The instrument is in need of some form of maintenance.
	Every 60 seconds	Low battery	The instrument's battery is low.

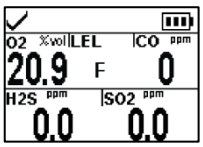
Sample warning display screens

Man-down warning (120-second pre-alarm countdown shown)

Gas alert (H_2S shown)

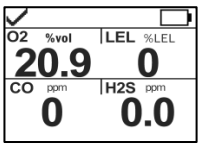


Instrument issue (LEL sensor failure shown)



Maintenance overdue (bump test for CO and H_2S shown)

Low battery



Indicators

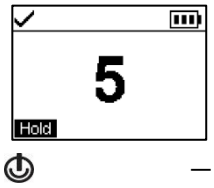
Most indicators turn on once, then off; only the confidence indicator persists, repeating every 90 seconds. If all signal* settings are on, status indicators will look and sound like this:

Indicator	Status	Color	Sound
User or site assignment, calibration, or bump test	Confirmation	Blue	Ascending
User or site assignment, calibration, or bump test	Failure	Red	Descending
Confidence indicator	Instrument on	Blue	Beep

*Signals (visual, audible, and vibration) vary based on instrument settings.

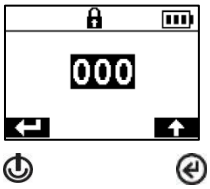
Power Off

Countdown



Hold for the full five-second countdown.

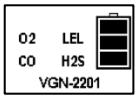
Enter security code*



Enter the displayed value.

Change the displayed value.

*Activation of this display screen and the security code value vary based on instrument settings



Quick Status

Check available battery power, installed sensors, and serial number any time the instrument is off: simultaneously press and hold ↵ and ⏻.

INDUSTRIAL SCIENTIFIC

MANUFACTURER DECLARATION OF CONFORMITY

Déclaration de Conformité Constructeur

CE

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

Gas detector *(Détecteur de gaz)* VENTIS PRO 4/5

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

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

No. of EC type examination certificate: **DEMKO 15 ATEX 1571**
(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

Reference European Standards *(Normes européennes de référence)*:

Rules of construction *(Règles de construction)*: EN 60079-0 :2012+A11 :2013, EN 60079-1 :2007
EN 60079-11 :2012

Category *(Catégorie)*: Ex II 1G / I M1
II 2G / I M1 with IR sensor
Ex ia I/IIC T4 Ma Ga
Ex d ia I/IIC T4 Ma Gb with IR sensor
Tamb -40°C to +50°C IP64
Tamb -20°C to +50°C with IR sensor

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

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 of 15/12/04: Electromagnetic Compatibility
Directive Européenne CEM 2004/108/EC du 15/12/04 : Compatibilité Electromagnétique
Harmonised applied standards: EN 50270:2015, EN 301 489-1 V1.8.1 :2008-04, EN 301 489-17
(Normes harmonisées appliquées) V2.2.1 :2012-09

III) The European Directive R&TTE 1999/5/EC of 9/03/99: Radio &Telecommunications Terminal Equipment
Directive Européenne R&TTE 1999/5/EC du 9/03/99: Équipements radio et équipements terminaux de télécommunication
Harmonised applied standards: EN 300 330-1 V1.8.0 :2014-06, EN 300 328
(Normes harmonisées appliquées) V1.8.1:2012-06

On behalf of the manufacturer
Pour le fabricant

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On behalf of the manufacturer representative in EC
Pour le représentant du fabricant dans l'UE

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The ATEX Authorized Representative
La Personne Autorisée ATEX

Tom Mikulin
Global Director, Product Development
(*Directeur Technique*)
15 January 2016

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