

Ventis Slide-on Pump

FIELD GUIDE

Setup, Operation, and Service

VENTIS 采样泵

现场指南

安装、使用和保养

Pompe clipsable pour Ventis

GUIDE D'UTILISATION SUR LE TERRAIN

Configuration, fonctionnement et entretien

Ventis Pumpe zum Aufschieben

BEDIENUNGSANLEITUNG

Konfiguration, Betrieb und Wartung

Bomba deslizable Ventis

GUÍA DE CAMPO

Configuración, operación y servicio



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Introduction

Each Ventis Slide-on Pump is certified by one or more certifying bodies (CBs). The 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 new marking on its label.

Valid certifications at the time of this printing are noted below (see Table 1). To determine which certifications a unit has, refer to its labels.

CBs issue warnings and cautionary statements applicable to their markings (see Table 2). Those that appear under the heading of “General” are issued by multiple agencies, by Industrial Scientific Corporation (ISC), or both; these apply to each unit regardless of its certifications. Additionally, those that appear under the heading of a specific CB also apply to units that bear the CB’s certification.

Table 1 Certifications

Directive or CB	Marking	Standards
ATEX ¹	Ex ia I Ma and Ex ia IIC T4 Ga; Equipment Group and Category: I M1 and II 1G;	EN 60079-0: 2009 EN 60079-11: 2007 EN 60079-26: 2007
CSA ²	Class I, Division 1, Group A B C D, T4 Exia; Ex ia IIC T4	CSA C22.2 No. 152 CSA C22.2 No. 157 CSA C22.2 No. 60079-0 CSA C22.2 No. E60079-11
IECEX ³	Ex ia IIC T4 Ga	IEC 60079-0: Fifth Edition IEC 60079-11: Fifth Edition IEC 60079-26:2006
INMETRO	Ex ia I Ma; Ex ia IIC T4 Ga	--
MSHA	Permissible for underground mines (Ventis MX4 only).	30 CFR Part 18
UL	Class I, Division 1, Groups A B C D, T4; Class I, Zone 0, AEx ia IIC T4 Ga; Class II, Group F G (Carbonaceous and Grain Dust);	UL 913 7th Ed. UL 60079-0 5th Ed. UL 60079-11 5th Ed. CSA C22.2 No. 157

Introduction

¹The EC type examination certificate is DEMKO 12 ATEX 1204290 with marking code Ex ia I Ma and Ex ia IIC T4 Ga for equipment group and category II 1G and I M1.

¹The model Ventis Slide-on Pump (VSP) complies with relevant provisions of European ATEX directive 94/9/EC and EMC directive 2004/108/EC.

¹The VSP is constructed with reference to published standards of directive 2006/95/EC, to eliminate electrical risks and fulfill 1.2.7 of ANNEX II of directive 94/9/EC.

²The VSP is CSA certified according to the applicable CSA standards for use in Class I, Division 1 and Class I, Zone 0 hazardous locations within an ambient temperature range of T_{amb} : -20°C to +50°C.






³The IECEx examination certificate is IECEx UL 12.0021 with marking code Ex ia IIC T4 Ga for hazardous locations with an ambient temperature range of T_{amb} : -20°C ≤ T_a ≤ +50°C.

³The charging contact parameters are: $U_m = 6.2V$; $I_i = 1.3A$.



Introduction

Table 2 Warnings and cautionary statements

General

-  For maximum safety and optimal performance of this equipment, read and understand the manual before use. Failure to perform certain procedures or note certain conditions may impair the performance of this product.
 -  When sample tubing is connected to the pump and the pump is powered on, it continues to draw sample gas even if the pump door is open. This can cause an unsafe condition. Remove the sample tubing from the pump inlet or power off the pump before opening the pump door.
 -  When the pump is powered on and no instrument is installed, the pump continues to draw sample gas. This can cause an unsafe condition. Power off the pump before removing the instrument.
 -  Service the unit and replace or charge the battery packs *only* in an area known to be nonhazardous. Not for use in oxygen-enriched atmospheres.
 -  Insert the alkaline batteries with the correct positive (+) and negative (-) orientation. The Ventis Slide-on Pump is approved for use with the AAA alkaline battery types Energizer EN92 and Duracell MN2400 only. Do *not* mix battery types.
-

IECEX and MSHA

-  Replace battery packs with these part numbers only.
IECEX: 17148313-1, 17134453-X1, 17138041, or 17050608.
MSHA: 17148313-2, 17134453-X2, 17138041, or 17050608.
 -  Alkaline battery pack part numbers 17150608 and 17138041 are only approved for use with three AAA battery types Duracell MN2400 and Energizer EN92. Replace all batteries at the same time.
-

Product Overview

The Ventis Slide-on Pump is an in-field attachable and in-field removable pump. This enables the use of a single compatible instrument for both personal monitoring (diffusion) and confined space applications (aspirated).

Installation: The pump's spring-assisted, hinged door is opened and secured closed by the unit's body-mounted latch; therefore, no tools are needed for instrument installation or removal. The unit also allows for the installation of a clip-equipped instrument.

Sample draw: 50 feet.

Flow rate (nominal): .27 liters per minute (LPM).

Power source: The pump unit is nonparasitic: it is powered by its own battery and it does not draw power from the instrument battery. When using Li-ion battery packs, the pump and instrument batteries should be charged separately.

Warranty: Industrial Scientific Corporation's Ventis Slide-on Pump is warranted to be free from defects in material and workmanship for a period of two years after purchase. This warranty includes the Li-ion battery pack as shipped with the pump.

Compatibilities

	Part number	Item
<i>Batteries</i>	17134453-XY	Li-ion battery kit* Run time is 18 hours at 20°C ; recharge time is 3 to 5 hours ¹ .
	17148313-Y	Extended range Li-ion battery pack* Run time is 36 hours at 20°C; recharge time is 3 to 7.5 hours ¹ .
	17151184-XY	Cover, Extended Range Lithium-ion
	17154577-XY	Alkaline battery kit* includes pack, batteries, and cover. Run time: 10 hours at 20°C (typical) ¹
*X" denotes color where 0=black and 1=orange. "Y" denotes approvals where 1 = ATEX, CSA, IECEX, INMETRO, and UL; and 2 = MSHA.		
<i>Pump accessories</i>	18109207-XX	Sample tubing kit with filter/water stop where XX = tubing length in feet (10, 20, 30, 40, or 50).
<i>Instruments</i>	Varies	Ventis MX4 (diffusion unit)
	Varies	MX4 iQuad ²
<i>Chargers</i>	18108191	Single-unit charger
	18108209	Single-unit charger with datalink
	18108650-A	6-unit charger
	18108651	12VDC Single-unit automotive charger with plug
	18108652	12VDC Single-unit truck-mount charger with plug
	18108653	12VDC Single-unit hard wired truck-mount charger



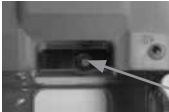
*Ships with pump as ordered.

¹ Battery run-times are typical for operation at room temperature.

²The VSP is not MSHA approved for use with the MX4 iQuad.

General Information

Hardware overview

Feature	Feature	Part number
	Visual alarm (pump)	—
Power-on and -off button		—
Power status indicator		—
	Audible alarm (with filter) 90dB (typical)	17154581-5 (filter)
	Inlet cap and tubing nipple	17129909
	Water barrier (inside inlet barrel; not shown)	17152395
	Battery status indicator and battery charge indicator	—
Visual alarm (instrument)		—
	Door latch	—
	Door	17154396
	Wrist strap (not shown)	17128737
	Air-sample tubing (not shown)	—
		
Door latch closed		
		
Door latch open		
		
Pump cradle	Exhaust with exhaust filter	17154853-5 (filter)

NOTE: If any ordered item is missing or appears to have been damaged, contact a local distributor of ISC products or ISC (see "Contact Information").

— Indicates part is not field-replaceable. See "Contact Information" to locate an ISC Service Center.

Pump setup

WARNING: This task must be completed in an area known to be nonhazardous.



1. Attach the battery* to the upper portion of the pump case back; the battery contacts align with the top of the pump unit. Tighten the battery's four captive screws to a torque setting of .39 Newtons per meter (55 ounces per inch).



2. To attach the wrist strap to the pump: thread the shorter strap loop through the pass-through on the back of the pump. Thread the longer strap loop through the shorter loop, then pull it to tighten.



3. Charge the pump in a compatible charger (single-unit charger shown). The pump's orientation is contact-side down so its battery contacts touch the charger's contact pins.

Tip. The battery charge indicators are:

- Solid green indicates charging is complete.
- Blinking green indicates charging is in progress.
- Blinking amber indicates a charge fault (see "Alarms" section).

* Do not touch battery contacts. Do not stack batteries on top of one another. Do not mix alkaline battery types; when replacing alkaline batteries, replace each and every battery.

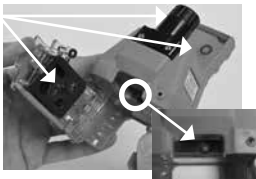
NOTE: When the pump is not in use, it can be stored with its battery attached or removed.

Setup, Operation, and Service

Instrument installation and removal



1. To open the door, move the latch up to its open position.



2. Check for and clear the pump inlet, door openings, exhaust filter, and audible alarm filter (see inset photo), of any dirt or debris.



3. To install the instrument, place it in the pump cradle at a slight angle; the instrument top meets the cradle top.

Press down on the instrument to secure it in the cradle.

NOTE: Remove the instrument in a similar fashion by pulling it up from and out of the pump.



4. To close the pump door, lower it and hold it closed. Move the latch to its closed position to secure the door.



5. After installing the instrument and before taking an air sample, perform a bump test.

Tip. To prevent damage to or loss of the door, transport or store the pump with its door closed and latched.

Pump operation



1. Power on the instrument.
Attach the sample tubing (shown) or sampling wand to the pump inlet's nipple.



2. Power on the pump: press and hold the pump's power button for two seconds. During the power-on process, the audible alarm and each LED will turn on, then off.

Check the pump's battery status indicator.

- Solid green indicates the battery's charge level is between 50% and 100%.
- Solid amber indicates the battery's charge level is at 50% or less.
- Continuous blinking amber and an audible beep every 15 seconds indicate a *critically* low battery: the battery's remaining charge will operate* the pump for less than one hour.

To power off the pump, press and hold the power button for five seconds. The audible alarm sounds five times as the pump powers off.



3. Before taking an air sample, force a pump fault condition: place a finger at the end of the tubing to block the flow of air.

If the pump fault occurs, remove the finger from the tubing; the pump should resume normal operation within approximately 10 seconds.

If no pump fault occurs or if the unit stays in pump fault, see the "Alarms" section for possible causes and recommended actions.

Recommended Practice: When sampling with a motorized pump and tubing, ISC recommends the "2 Plus 2 Sampling Rule". This is a guideline for calculating the time needed for the air sample to reach the instrument and produce readings for any gases present that are detectable by the installed sensors. Before noting the instrument readings, allow for a base sampling time of 2 minutes plus an additional 2 seconds per foot of tubing. For example, if the sample tubing is 20' (6.096 m) in length, allow a total time of 2 minutes and 40 seconds (20 x 2) before noting the instrument readings.

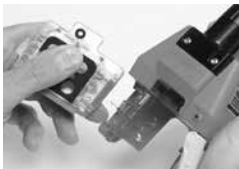
*Operation at room temperature.

NOTE: If the pump does not successfully power on, check the battery's level of charge; for possible fault indicators, see the "Alarms" section.

Setup, Operation, and Service

Service

Door



- 1 Power off the pump.
- 2 Open the door.
- 3 To remove the door, lightly press it past the full open position (shown above).



- 4 A wire extends from the spring coil located inside the covered hinge. To attach the door, ensure the wire rests on the *inside* of the door. Press the door's flexible pegs into the pump case grooves located above and below the covered hinge.

Battery

WARNING: This task must be completed in an area known to be nonhazardous.



- 1 Power off the pump.
- 2 To remove the battery* from the pump, loosen its four captive screws.
- 3 Attach the battery* to the pump case back; align the battery contacts with the *top* of the pump unit. Tighten the battery's four captive screws to a torque setting of .39 Newtons per meter (55 ounces per inch).

Water barrier



- 1 Power off the pump.
- 2 Turn the pump inlet cap counterclockwise to remove.



- 3 Remove the water barrier from the inlet barrel.
- 4 Place the new water barrier inside the inlet barrel; the side with the larger filter surface should face the instrument operator.



- 5 Reattach the cap and turn clockwise to tighten.

* Do not touch battery contacts. Do not stack batteries on top of one another. Do not mix alkaline battery types; when replacing alkaline batteries, replace each and every battery.

Service

Exhaust filter or audible alarm filter



1 Using a pair of tweezers, peel off the audible alarm filter (shown) or the exhaust filter and discard.



2 Lift to remove a new filter from the pack.



3 Place the filter on the alarm (or exhaust) adhesive side down. Press and hold for five seconds to ensure the adhesive is activated.



Alarms

The following table describes the types of alarms that may occur when using the pump. Indicators, possible causes, and recommended actions are described for each alarm type. For additional assistance in resolving any alarm condition, see an on-site supervisor or contact ISC Technical Support (see “Contact Information”).

Alarm type and indicators	Possible causes	Recommended actions
Battery failure <ul style="list-style-type: none">• Audible alarm beeps on and off continually.• Battery status LED blinks amber continually.	The battery pack can no longer operate the unit.	Charge or replace the battery pack.
System alarm <ul style="list-style-type: none">• Audible alarm turns on.• One LED blinks <i>twice</i>.• Audible alarm turns off. The above sequence repeats continuously.	There is system level fault.	See an on-site supervisor or contact ISC Technical Support (see “Contact Information”).
Pump flow fault <ul style="list-style-type: none">• Audible alarm turns on.• One LED blinks <i>once</i>.• Audible alarm turns off. The above sequence repeats continuously.	The pump nipple, inlet barrel, water barrier, exhaust (inside pump cradle), or sample tubing is blocked.	Check for debris at the pump nipple, inside the inlet barrel, at the water barrier, inside the pump cradle, and in the tubing. Attempt to clear any blockage. If the condition persists, the filter or the tubing may need to be replaced.
Charge fault <ul style="list-style-type: none">• Battery status LED blinks amber continually.	The unit is not properly seated in the charger or the battery is alkaline and cannot be charged. The battery temperature is outside the allowable temperature range for charging.	Remove the pump from the charger. Re-dock a Li-ion powered pump. Allow the battery to reach a temperature that is within the allowable range for charging.

Notes



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:)*

Ventis Slide-on Pump (Pomper) (VSP)

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:
(N° Attestation CE de Type du matériel:)

DEMKO 12 ATEX 1204290


Issued by the Notified Body no. 0539:
(Délivré par l'Organisme notifié sous le numéro 0539)

UL International DEMKO A/S, IYSKEAR 8
P.O. Box 514, DK – 2730, HERLEV, DENMARK

Reference European Standards (Normes européennes de référence):

Rules of construction *(Règles de construction):* EN 60079-0 :2009 ; EN 60079-11 :2007 ;
EN 60079-26 :2007 ; EN 50303 :2003

Category *(Catégorie):*

 II 1G / I M1
Ex ia IIC T4 Ga / Ex ia I Ma
Tamb -20°C to +50°C

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:
(Délivré par l'Organisme notifié sous le numéro 0518)

SIRA Certification Services, Rake Lane
Eccleston, Chester CH4 9JN, UK

II) The European Directive EMC 2004/108/EC of 15/12/2004: Electromagnetic Compatibility
Directive Européenne CEM 2004/108/EC du 15/12/2004: Compatibilité Electromagnétique

Harmonised applied standards:
(Normes harmonisées appliquées)

EN 50270

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Director, Engineering *(Directeur Technique)*
30 March 2012

OUR MISSION

Preserving human life on, above and below the earth
Delivering highest quality, best customer service ...
every transaction, every time



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