

The Sampler

Motorized Sampling Pump

User Manual

BW
Technologies
by Honeywell

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Limited Warranty and Limitation Liability

BW Technologies LP (BW) warrants the product to be free from defects in material and workmanship under normal use and service for a period of two years, beginning on the date of shipment to the buyer. This warranty extends only to the sale of new and unused products to the original buyer. BW's warranty obligation is limited, at BW's option, to refund of the purchase price, repair or replacement of a defective product that is returned to a BW authorized service center within the warranty period. In no event shall BW's liability hereunder exceed the purchase price actually paid by the buyer for the Product.

This warranty does not include:

- a) fuses, disposable batteries or the routine replacement of parts due to the normal wear and tear of the product arising from use;
- b) any product which in BW's opinion, has been misused, altered, neglected or damaged, by accident or abnormal conditions of operation, handling or use;
- c) any damage or defects attributable to repair of the product by any person other than an authorized dealer, or the installation of unapproved parts on the product; or

The obligations set forth in this warranty are conditional on:

- a) proper storage, installation, calibration, use, maintenance and compliance with the product manual instructions and any other applicable recommendations of BW;
- b) the buyer promptly notifying BW of any defect and, if required, promptly making the product available for correction. No goods shall be returned to BW until receipt by the buyer of shipping instructions from BW; and
- c) the right of BW to require that the buyer provide proof of purchase such as the original invoice, bill of sale or packing slip to establish that the product is within the warranty period.

THE BUYER AGREES THAT THIS WARRANTY IS THE BUYER'S SOLE AND EXCLUSIVE REMEDY AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. BW SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES, INCLUDING LOSS OF DATA, WHETHER ARISING FROM BREACH OF WARRANTY OR BASED ON CONTRACT, TORT OR RELIANCE OR ANY OTHER THEORY.

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Signal Words

This document uses the following signal words, as defined by ANSI Z535.4-1998:



Hazardous situation which, if not avoided, *will* result in death or serious injury. This symbol identifies the most extreme hazardous situations.



Hazardous situation which, if not avoided, *could* result in death or serious injury.



Hazardous situation which, if not avoided, *may* result in moderate or minor injury.



Situations which, if not avoided, may result in property damage.

International Symbols



Approved to both U.S. and Canadian Standards by CSA International



European Explosives Protection

The Sampler

Introduction

WARNING

To ensure your personal safety, read the Safety Information before you use the Sampler.

The Motorized Sampling Pump (the Sampler) is a spot sampling device that can be used with most BW Technologies by Honeywell (BW Technologies) single and multiple gas detectors. An internal motorized pump transports potentially hazardous gases from a sample area to a detector.

The Sampler is an accessory for a personal safety device. It is your responsibility to respond properly to alarm conditions.

Order Number	Description
GA-SP01	Motorized sampling pump with rigid probe and sample tubing
GA-SP02	Motorized sampling pump with rigid probe and sample tubing (Europe)

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Safety Information - Read First

Use the Sampler only as specified in this manual, otherwise the protection provided by the Sampler may be impaired.

WARNING

To avoid personal injury:

- Replace the batteries as soon as the Sampler indicates a Low Battery Alarm.
- Use only batteries recommended by BW Technologies by Honeywell to prevent damage or personal injury and maintain intrinsic safety.
- Use only approved AA alkaline or charged AA NiMH batteries properly installed in the Sampler case. Refer to [Specifications for approved batteries](#).
- To avoid personal injury or damage to the detector, use only the specified replacement parts.



CAUTION

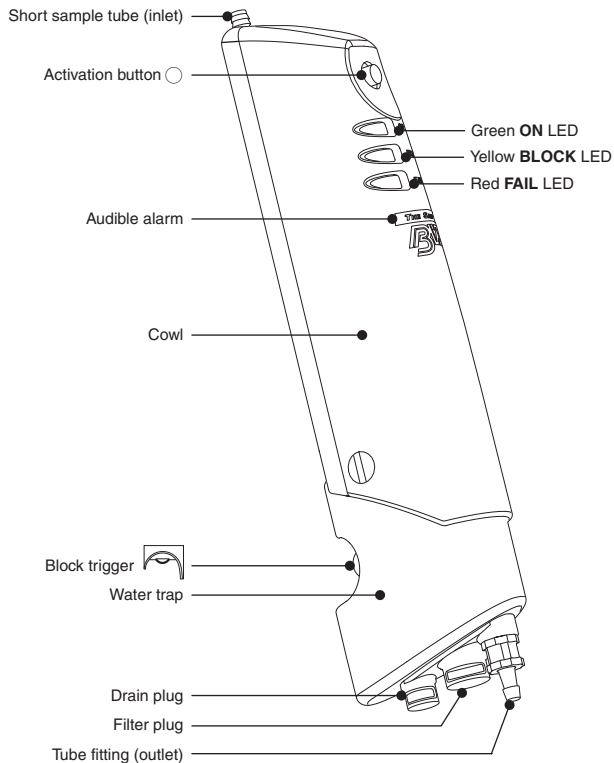
FOR SAFETY REASONS, THIS EQUIPMENT MUST BE OPERATED AND SERVICED BY QUALIFIED PERSONNEL ONLY. READ AND UNDERSTAND THE USER MANUAL COMPLETELY BEFORE OPERATING OR SERVICING.






- **Warning:** Substitution of components may impair Intrinsic Safety.
- This product is not a gas detector.
- Do not use the Sampler if it is damaged. Before you use the Sampler, inspect the case. Look for cracks or missing parts.
- Do not use the detector if it is damaged. Inspect the detector before using. Look for cracks and/or missing parts.
- If the Sampler is damaged or something is missing, contact [BW Technologies by Honeywell](#) immediately.
- Use only recommended AA alkaline or NiMH batteries properly charged and installed in the Sampler case. Refer to [Replacement Parts and Accessories](#).
- Charge NiMH batteries using the recommended charger only. Do not use any other charger. Failure to observe this precaution could lead to fire or explosion.
- Do not charge or charge batteries in a hazardous location. Doing so will impair the intrinsic safety of the unit and may lead to fire or explosion.
- Read and observe all instructions and precautions in the literature provided with the charger. Failure to do so may result in fire, electric shock or other forms of personal injury or property damage.

- Do not expose the Sampler to electrical shock and/or severe continuous mechanical shock.
- The Sampler warranty will be void if the unit is disassembled, adjusted or serviced by non-BW Technologies by Honeywell personnel.
- Do not immerse the Sampler in liquids.
- Confirm that the water trap is empty.

NOTICE

-  This instrument contains batteries. Do not mix with the solid waste stream. Spent batteries should be disposed of by a qualified recycler or hazardous materials handler.
- Airflow can also be blocked by temporarily kinking the hose or covering the end of the rigid tube.
- We recommend that you perform a block test once the Sampler is activated.
- If you reactivate the Sampler within a 30-minute period, it will resume normal operation (i.e., the Sampler will not enter calibration).
- Once the Low Battery Alarm has been activated you have approximately 20 minutes before the Sampler turns off.
- To initiate a calibration, confirm the Sampler is on then press  and hold for 6 seconds. The Sampler beeps, then deactivates. The Sampler enters calibration mode the next time it is activated.
- Do not tighten the rear assembly screws greater than 3.0 in-lb



Pushbutton	Action	Description
	Activate	Press  to activate.
	Deactivate	Press  and hold for 2 seconds to deactivate. The Sampler beeps, then deactivates. The Sampler enters calibration mode the next time it is activated.
	Calibration	<ul style="list-style-type: none"> Confirm that the Sampler is on. Press and hold  for 6 seconds to start calibration. The Sampler beeps, then deactivates. The Sampler enters calibration mode the next time it is activated.
	Airflow	<p>To block airflow through the Sampler, firmly press the block trigger.</p> <p>Note: Airflow can also be blocked by temporarily kinking the hose or covering the end of the rigid tube.</p>

LED	Status	Description
Green	ON	Indicates the Sampler is operating properly.
Yellow	BLOCK	Prompts you to block the airflow.
Red	FAIL	Indicates that the Sampler is in an error condition.

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Getting Started

The Sampler monitors and controls airflow continuously. Occasionally the motor speed adjusts automatically to compensate for changes in environmental and sampling conditions. The Sampler also automatically enters calibration mode when required.

At any time, you can verify that the Sampler is operating correctly by blocking the flow and generating a low flow alarm.

What's in the Box


The list below provides the standard items included with the Sampler. If the Sampler is damaged or parts are missing, contact [BW Technologies by Honeywell](#) or an authorized distributor immediately.

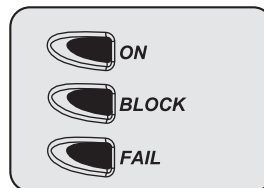
- Batteries (2 replaceable AA alkaline cells)
- Short sample tube (4.65 in/11.81 cm)
- Medium sample tube (10.25 in/26.00 cm)
- Sampling hose (10 ft/3 m) with blue stone coarse particulate filter attached
- Attachment hose (3 ft/1 m)
- Particulate filters, Quantity 2
- Quick reference card
- User Manual

To order replacement parts, refer to [Replacement Parts and Accessories](#).

The Sampler is shipped with the short sample tube installed. The Operation section describes how to replace the sample tube. To install the batteries, refer to [Replacing the Batteries](#).

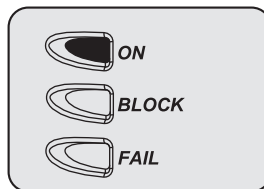
Activating the Sampler

1. To activate the Sampler, press .
2. All 3 LEDs flash and the audible alarm beeps 4 times. When the Sampler is activated for the first time, it enters calibration mode. See [Calibration](#) to ensure activation.



Normal Operation

During normal operation, the green **ON** LED is lit and the motor is running.



Operating Guidelines

When operating the Sampler, adhere to the following guidelines:

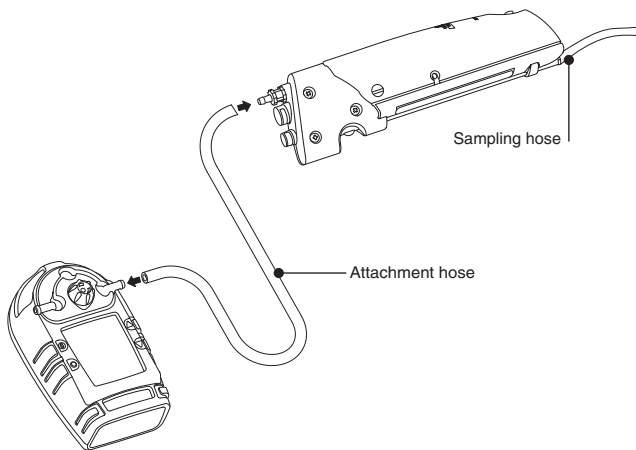
1. Confirm that all hoses are properly attached to the Sampler
2. Confirm that there are no leaks in the system before obtaining a sample.

Depending upon the length of tubing and the type of gas being sampled, allow at least 3 seconds per foot of hose to ensure the readings stabilize.

Example: 50 feet = 2.5 minutes

Refer to the applicable detector user manual for expected response time(s).

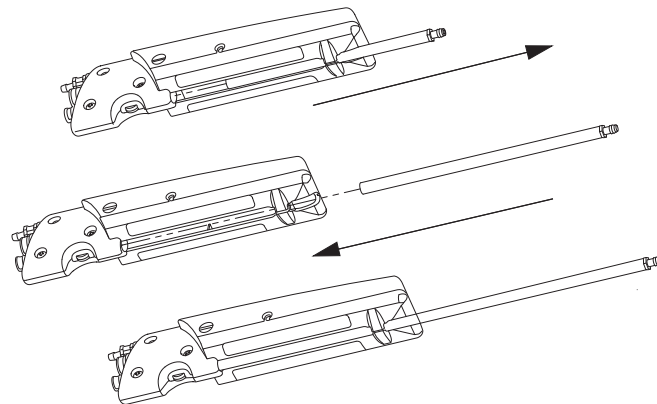
Standard Hose Configuration



Sample Tube Connections

The Sampler is shipped with the short sample tube installed.

To remove the installed sample tube, grasp the end of the tube and pull straight out. Insert the new sample tube through the enclosure and into the gasket opening. To ensure a proper seal, the end of the tubing should be inserted until firm resistance is felt.



Block the Airflow

Block the airflow to the Sampler to confirm that it is working correctly and there are no leaks in the system.

There are two ways for you to test the airflow of the Sampler:

1. Press and hold the block trigger
2. Kink the sampling or attachment hose.


If the red **FAIL** LED blinks and the alarm beeps while the airflow is blocked, then the Sampler is operating correctly. If it does not, reconnect the hose/tube to check for leaks.

Note: We recommend that you perform a block test once the Sampler is activated.

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Deactivating the Sampler

To deactivate the Sampler, press  and hold for 2 seconds.

The audible alarm beeps 3 times, all LEDs light up and then the Sampler turns off.

Note: *If you reactivate the Sampler within a 30-minute period, it resumes normal operation (i.e., the Sampler will not enter calibration).*

Alarms

Low Flow Alarm

If the Sampler detects a low flow situation, the red **FAIL** LED flashes and the audible alarm beeps twice.

The Sampler will continue in this mode for approximately 10 seconds. This gives you time to remove any blockage in the line. If the condition does not change, the Sampler indicates a block.

If the Sampler detects the expected airflow it returns to normal operation. If the Sampler does not detect the expected airflow it returns to the low flow alarm state until the airflow recovers.

Low Battery Alarm

Note: *Once the Low Battery Alarm has been activated you have approximately 20 minutes before the Sampler turns off.*


The Sampler tests the batteries on activation and continuously thereafter. If the battery voltage is low, the Sampler activates the Low Battery Alarm. The audible alarm will beep once every 20 seconds and the green **ON** LED will flash.

The Low Battery Alarm continues until you replace the batteries or the battery power nears depletion. If the battery voltage drops too low, the audible alarm beeps once the red **FAIL** LED lights and the Sampler turns off.

Refer to [Replacing the Batteries](#).

System Fault Alarm

If the Sampler detects a system fault, the red **FAIL** LED lights and the audible alarm beeps.


Press  to clear the alarm. The Sampler automatically enters the calibration mode. If the Sampler passes calibration it will enter normal operation mode. If calibration fails, refer to [Troubleshooting](#).

Calibration

Upon startup, the audible alarm emits three beeps, the pump activates at a high speed and the green **ON** LED flashes.

After one second, the pump speed adjusts to its normal rate.

The audible alarm then emits a beep and a tone and the yellow **BLOCK** LED lights. At this time, block the airflow. Refer to [Block the Airflow](#).


Note: *To initiate a calibration, confirm the Sampler is on then press  and hold for 6 seconds. The Sampler beeps, then deactivates. The Sampler enters calibration mode the next time it is activated.*

Calibration Pass

When the Sampler passes calibration the audible alarm emits 3 beeps and the Sampler enters normal operation mode.

Calibration Fail

If the Sampler fails calibration, the audible alarm emits 6 beeps, the red **FAIL** LED lights and the Sampler turns off. Refer to [Troubleshooting](#).

Note: *To initiate a calibration, confirm the Sampler is on then press  and hold for 6 seconds. The Sampler beeps, then deactivates. The Sampler enters calibration mode the next time it is activated.*

Maintenance

To keep the Sampler in good operating condition, perform the following basic maintenance as required:

- Log all maintenance and fault events.
- Clean the exterior with a soft damp cloth. Do not use solvents, soaps or polishes.
- Do not immerse the Sampler in liquids.
- Confirm that the filter is free of dirt and replace it if necessary.
- Confirm that the water trap is empty.

Replacing the Batteries

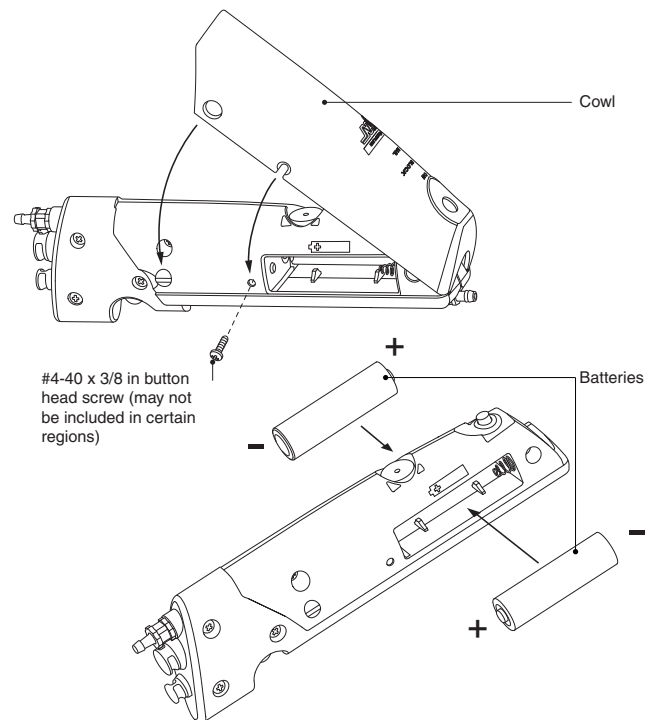
⚠ WARNING

To avoid personal injury:

- **Replace the batteries as soon as the Sampler indicates a Low Battery Alarm.**
- **Use only batteries recommended by BW Technologies by Honeywell to prevent damage or personal injury and maintain intrinsic safety.**
- **Use only approved AA alkaline or charged AA NiMH batteries, properly installed in the Sampler. Refer to [Specifications](#) for approved batteries.**
- **Charge batteries using only a recommended charger. Do not use any other charger. Failure to observe this precaution could lead to fire or explosion.**
- **Do not change or charge batteries in a hazardous location. Doing so will impair the intrinsic safety of the unit, and may lead to fire or explosion.**

Deactivate the Sampler before replacing the batteries.

1. Loosen but do not remove the #4-40 x 3/8 in button head screw on the side of the Sampler. The screw may not be included in certain regions.
2. Spread the cowl to disengage it from the body of the Sampler.
3. Rotate the cowl upwards.
4. Remove the two batteries.
5. Install new batteries, observing polarity.
6. Attach the cowl.
7. Rotate the cowl downward until it snaps into position. Tighten the #4-40 x 3/8 in button head screw, if included.



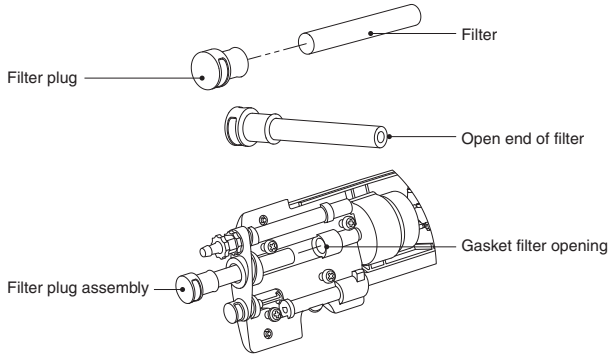
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Replacing a Filter

The filter must be changed when it becomes clogged with dirt.

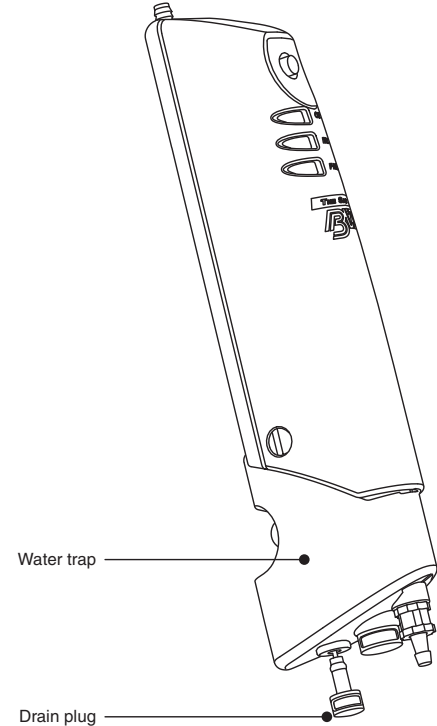
1. Remove the filter plug assembly from the Sampler.
2. Remove the clogged filter and insert a new filter, ensuring that the filter is firmly seated into the plug and the open end of the filter is facing out.
3. Insert the filter plug assembly into the Sampler, ensuring the filter enters the gasket filter opening.



Draining the Water Trap

Empty the water trap periodically.

Pull open the drain plug and shake any water out of the water trap. Replace the plug when complete.

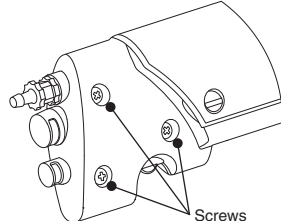


Troubleshooting

If a problem occurs, calibrate the Sampler.

If the problem persists, refer to the Troubleshooting table, below.

If the problem cannot be resolved, contact [BW Technologies by Honeywell](#).

Problem	Possible Cause	Solution
Sampler does not turn on.	No batteries.	Install batteries.
	Depleted batteries.	Replace batteries.
	Damaged or defective Sampler.	Contact BW Technologies by Honeywell or an authorized distributor.
Continuous low flow alarm. System fault alarm.	Extreme environmental change has formed condensation in the pump mechanism.	Wait approximately 15 minutes for the condensation in the Sampler to clear.
Sampler automatically turns off.	Automatic Shutdown feature activated due to weak batteries.	Replace batteries.
Sampler turns off with red FAIL LED flashing.	A blocked state was not triggered during calibration.	Activate the Sampler. During calibration, block the airflow of the Sampler when the yellow LED flashes.
	There is water in the water trap.	Empty the water trap.
	Filter is in backwards.	Remove the filter plug assembly and orient the filter so the open end is facing away from the filter plug. Re-insert the filter plug assembly.
	The filter is dirty.	Replace the filter.
	The filter assembly or drain plug is not installed.	Install the filter assembly and drain plug.
	Rear assembly screws are loose.	Tighten rear assembly screws. 
Pump has failed.	Contact BW Technologies by Honeywell or an authorized distributor.	

Note: Do not tighten greater than 3.0 in-lb

Replacement Parts and Accessories

WARNING

To avoid personal injury or damage to the detector, use only the specified replacement parts.

To order parts or accessories listed in the following table, contact [BW Technologies by Honeywell](#) or an authorized distributor.

Model No.	Description	Qty.
GAMIC-V-CHRG1	12V vehicle charger and 4 AA NiMH batteries	1
GAMIC-C01-K	110 VAC 4-port charger and 4 AA NiMH batteries	1
GAMIC-C01-K-(xx)	220 VAC 4-port charger* and 4 AA NiMH batteries	1
SP-T2-S	Standard rigid sample tube with barbed fitting (4.65 in/11.81 cm)	1
SP-T2-M	Standard rigid sample tube with barbed fitting (10.25 in/26.00 cm)	1
SP-T1-2	Rigid sample probe	/ft/0.3 m
D4-PF-1	Blue stone coarse particulate filter	1
M1806	Flexible sampling hose	/ft/0.3 m
SP-PF-1	Sampler particulate filters	5
M2437K	#4-40 x 3/8 in button head screw	10

**Note: To ensure that you receive the correct power adaptor in your region, add one of these suffixes to the end of order number.*

(-UK) for United Kingdom

(-EU) for Europe

(-AU) for Australia/China

Specifications

Operating Humidity: 5% to 95% relative humidity (non-condensing)

Sample Flow Rate: Typical 300 ml/min

Sample Distance: 50 ft/15.2 m maximum recommended.

Sample Delay Time: 3 seconds per 1 ft/0.3 m.

Connections:

Outlet 1/8 in (3.175 mm) barbed fitting for soft hose.

Inlet 1/8 in (3.175 mm) barbed fitting for soft hose or 1/4 in (6.35 mm) O.D. for rigid tube.

Weight: 6.2 oz (175 g)

Dimensions: 7.4 x 1.3 x 2.1 in/18.8 x 3.3 x 5.3 cm

Visual Alarm: Three high-intensity LEDs

Warning Conditions: Low flow, low battery, system fault

Typical Battery Life: Alkaline, NiMH 30 hours at 25°C (77°F)

Altitude: Up to 9843 ft/3000 m

Pollution Degree: 2

Installation Category: I

Approved Batteries:

North America/IECEx

Alkaline

Duracell MN1500

Energizer E91

NiMH rechargeable

Quest Platinum HGAAC1800G

Quest HG1600AACS

Energizer NH15

Maha Powerex 1700 mAh MH-AA170

Maha Powerex 1800 mAh MH-AA180

Yuasa Delta 1300 mAh DHA1400AA

Yuasa Delta 1500 mAh DHA1600AAC

Worst Case Temperature Code

Alkaline

NiMH

Ambient

Temperature Code (Class)

T150°C

T163°C

T211.4°C

T199°C

T205°C

T192°C

T201.1°C

T209°C

T204.4°C

T163°C

T212°C

-20°C ≤ Ta ≤ +50°C

Battery Charger (optional): Quest™ Q2 4-port rapid NiMH battery charger with country-specific mains adapter

Charge Time: 1-3 hours

Approvals: Approved by CSA to both U.S. and Canadian Standards.

Class I, Division 1, Group A, B, C, and D;

Class I, Zone 0, Group IIC

IECEX Approval: Ex ia IIC Ga

IECEX CSA04.0003X

ABS Type Approved VA-348-169-X



MICROWATT

Making Safety Work

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Wear yellow. Work safe.

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English

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