PAS Flashlight

Passive Alcohol Sensor

INSTRUCTION MANUAL

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CONTENTS

INTRODUCTION

The PAS Flashlight is a combination of:

- An LED flashlight with three modes (High, Low, and Strobe)
- A dynamic sampling system
- An electrochemical fuel cell sensor to detect even low levels of alcohol on the breath, in the ambient air, in enclosed spaces, or from open containers

The Passive Alcohol Sensor is used to check alcohol presence/absence with or without a subject's direct participation. When used ***without the subject's direct participation*** it's known as **passive** sampling, as opposed to active testing where the subject blows directly into a mouthpiece or the intake port.

The instrument was developed from prototype sensing devices that had been produced to specifications proposed by the Insurance Institute for Highway Safety.

Designed specifically for use by law enforcement, correctional institutions, and security personnel, it can be operated with one hand, leaving the other completely free. The instrument is easy to use and has been designed to withstand the physical conditions experienced in operational situations. It is resistant to adverse weather conditions and mechanical shocks. Despite its rugged construction and appearance, the unit is no heavier than an equivalent flashlight. It is well-balanced and comfortable to use for several hours at a time.

The device has been extensively tested by police in the United States under field conditions. During these trials carried out by traffic patrols at random checkpoints, use of the instrument led to an increased number of arrests for Driving While Intoxicated, with the added advantage of reducing the number of false arrests over conventional sobriety tests.

Further information regarding this precision instrument or its use in screening subjects for the presence of alcohol can be obtained by calling **1-800-660-7643**

HOW THE PAS FLASHLIGHT WORKS

A small, silent pump draws an air sample through a **fuel cell (electrochemical)**, which generates a small electrical current in the presence of alcohol vapor. This current is amplified electronically and used to drive a multicolored **bar-graph display.** The number of bars lit in the display indicates the presence of alcohol in the air sample.

A NiMH rechargeable battery (no memory) powers the flashlight. Battery life per charge depends on the mode of light beam being used. Operating on High Power will provide 65 minutes of continuous use per charge while operating on Low will provide 190 minutes. An integrated fast charger is provided so that the unit can be ready for use at all times. The charger can be plugged into either 12-volt automotive power or 110 vac @ 60 Hz. power source. The AC/DC Charging System has been introduced to make in-vehicle charging more convenient, while securing the device in the vehicle.

We want you to get the best possible results from your PAS Flashlight. Please take the time to study this manual and to practice using the instrument before depending on it under real-life conditions.

BASIC FEATURES

Flashlight: 1000 lumen LED bulb can operate in three modes: High, Low and Strobe.

Charger Connection: Located on the backside of the tube, slides into AC/DC charger rack.

Flashlight Control Switch: Large positive-feedback switch.

Sampling Ports: Two small holes let the air sample pass through the PAS. The inlet port is on the right side of the unit, and the outlet port is on the left side.

Secondary Light: Your choice of HGN or UV light is mounted on the underside of the unit and is illuminated whenever the flashlight is on for use in investigations.

Bar-Graph Display: Nine rectangular LED lamps give an indication of the alcohol level in the sample. The display is color-coded for easy reading at night (see page 10)

Calibration Port: Small plastic plug in back of tube for access to calibration pot.

Sensor Control Button: Positive feedback switch. Auto Reset/Shut off after 45 seconds or manually override by pressing and releasing switch.

Battery Tube: The device uses a high-capacity rechargeable NiMH (no memory) battery.

AT-A-GLANCE DISPLAY

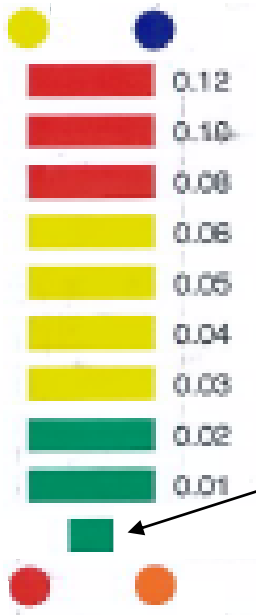
Five indicator lamps above and below the bar-graph display provide useful feedback when using the flashlight or sensor.

Sampling Indicator

The PMP light indicates when the PAS is taking an air sample. It comes on for a few seconds at the beginning of each alcohol measurement cycle.
While the pump is running…hold still.

Flashlight Indicator

The LGT light indicates when the flashlight is on. If this light is on but there is no beam emitting from the flashlight, you have a defective lamp module.



Sensor Indicator

The lowest GREEN BAR indicates the PAS alcohol sensor is on.

Low Battery Indicator

The BAT light flashes once a second when the battery is almost discharged and needs recharging. When flashing, charge *IMMEDIATELY* to avoid battery failure.

Heater Indicator

The HTR light comes on whenever the fuel cell heater is on. When the flashlight is on, the heater cycles on and off to maintain a constant fuel cell temperature.

INITIAL CHARGING

When you receive your flashlight, the battery may already be fully charged. If the low battery indicator is not flashing, the initializing has already been performed at the factory. You may proceed to use the PAS.

After receiving your unit with the AC/DC Charging System, it is important to follow these steps for getting an initial full charge into the battery.

[1] Apply Power
Insert the battery button-end first. Plug the AC power adapter into a 110-volt AC electrical outlet. Connect the adapter to the hole in the base of the charger cradle. Or, to use the auto adapter, follow the same steps except you will plug the cigar plug into the vehicle outlet. When connected to power, the YELLOW LED on the charger cradle should come *ON* to indicate that power is reaching the cradle input connector. The GREEN LED will be *OFF*.

[2] Apply Charge
Snap the flashlight into the charger cradle. Make sure it is seated correctly. Now the GREEN LED should come *ON* and remain on throughout the charge cycle. ***IF*** the YELLOW LED begins blinking, there is something wrong with the power source. See section on Fault Conditions.

[3] Full Charge
A fully charged condition may take up to 3.5 hours. When the battery charge cycle is complete, the GREEN LED will begin *BLINKING/FLASHING*. This indicates a trickle charge level has been achieved. It is recommended by the manufacturer that the unit now be “Reset”. To reset the charger and gain up to 20-35 minutes MORE charge, simply remove the flashlight off of the charging cradle for a few seconds and then replace. When the GREEN LED begins to blink again, an additional 20-35 minutes of charge should be gained.

NOTE: If the GREEN LED starts to flash prior to 3.5 hours (in about 15 minutes), you may only have a partial charge. This condition will result in a shorter than expected discharge period and the low battery indication on the display will begin to flash. In this event, restart (reset) the charging procedure and wait until the green light begins to flash. A fully charged condition should result.

Fault Condition

If the Flashlight Switch is left in the “ON” position when placed into the charger/cradle, the YELLOW LED on the charger will begin to blink after a short period. You may not be aware the Flashlight Switch has been left in the “ON” position because the battery may be drained to a level that cannot power the flashlight lamp. If this condition is observed, press the Flashlight switch to turn it off and after a short time (depending on battery condition) the YELLOW LED should stop blinking and begin charging.

Also, when the Flashlight switch is turned off, the RED Low Battery indicator on the Sensor display will begin to blink, indicating the Flashlight Switch is in the correct position for charging. This RED Low Battery light will go off after some battery charging has occurred.

A fully charged battery will last approximately 190 minutes on Low; 65 minutes on High

IT IS RECOMMENDED THAT THE UNIT BE LEFT IN THE CHARGER/CRADLE WHEN NOT IN USE.

CAUTION! Do not allow the metal case of the flashlight to come into contact with metal when charging. Such contact may create an electrical short causing serious damage to the charging system although a “slo-blo” fuse is integrated into the system to prevent such damage. If the fuse blows, replacements are available from the manufacturer. Only a 1.5 amp slo-blo fuse should be used.

CAUTION! Occasionally inspect the battery cover wrapping for tears or punctures as they may cause serious electrical damage to the product.

NOTE: The timing of the low battery indicator on the flashlight usually lasts approximately 10 minutes before the battery is totally dead.

AVOID A DEAD BATTERY CONDITION; OTHERWISE THE BATTERY MAY HAVE TO BE REPLACED.

LED FLASHLIGHT OPERATION

Flashlight Control Switch (LED Bulb)

- Press and Release the flashlight switch (you will hear a “click”) at the top of the front of the tube. Bulb turns “ON” in “HIGH” mode.
  (CAUTION: Bulb will get VERY HOT in “HIGH” Mode – do not touch)

- Gently tap the same switch to put the flashlight in “LOW” mode. Battery will last up to 190 minutes in this mode.

- Gently tap the switch again to put the flashlight in “STROBE” mode.

- Press and Release the flashlight switch fully (you will hear a “click”) while in any mode to turn off the bulb. If bulb is off for more than 3 seconds, the next time the bulb is turned “ON” – it will default to “HIGH” mode.

Bulb Replacement

You will need to replace the flashlight lamp module when it burns out. Replacement modules (including easy-to-follow instructions) are available from PAS Systems International.

SAMPLING

It is important to practice these procedures so that they are second nature when you use the PAS Flashlight under field conditions!

STEP 1: FLASHLIGHT ON

For best performance, turn the flashlight on a minute or so before you plan to use the alcohol sensor. This activates the fuel cell heater and ensures that the unit responds quickly to alcohol. The orange HTR lamp will cycle on and off as the thermostat regulates the fuel cell temperature. Turning on the flashlight is most important at low temperatures (see page 10).

STEP 2: BATTERY CHECK

Check that the low-battery (BAT) lamp is not flashing. If it is, the batteries should be recharged before using.

STEP 3: ZERO CHECK

If you are unsure whether the fuel cell has recovered from the previous sample, check a sample of alcohol-free air (air blank) and verify that no bars light up in the display; observe for about 5 to 10 seconds. If bars do light up, wait a minute, then try again. In severe cases refer to the section on Overload Recovery on page 13.

STEP 4: INTO POSITION

For optimum results, the inlet port on the right side of the flashlight tube should be ***5-7 inches from the subject's mouth***, and directly in front of it. Readings may be lower if it is held too far away or off to one side.

The officer can approach the vehicle in the normal way, using the flashlight to illuminate the driver and the drivers' hands. Standing in the safest possible position just behind the center post, the officer can have the driver roll down the window and turn toward him. In this location, the officer is in good position to collect a sample with the PAS. The intake port is on the right-hand side of the flashlight toward the face and mouth of the subject, allowing easy visibility of the display.

STEP 5: SUBJECT SAMPLING

Encourage conversation to ensure the subject is exhaling when the PAS V takes a sample.

Summary:	**Distance:**	Less than 10 inches (5-7 inches optimal)
	Direction:	Point intake port at mouth
	Talking:	Make sure subject is speaking.

REMEMBER "DDT"

Under certain circumstances, if the subject is willing, you may have the subject take a deep breath and blow slowly and directly toward the sensor's intake port while sampling. This will confirm the presence (or absence) of alcohol. Do NOT hold closer than 4 inches, and do NOT allow the subject to blow in hard bursts.

STEP 6: START SAMPLING

To take a sample, press the PAS Sensor control button and ***release it immediately***. The GREEN sensor indicator will come on to show that the sensor is on. The yellow PMP indicator will also turn on for the 5 seconds that the pump is running and taking the sample. While the pump is running it is important to keep the subject talking for the 5 seconds. Therefore, ask questions that require lengthier answers than simply yes or no.

Once the pump has stopped running, it is no longer necessary to hold the flashlight in position.

STEP 7: PEAK READING

The air pump draws air through the fuel cell for about 5 seconds. If there is alcohol present the bars in the main display will start lighting up, with a peak reading in about 2-10 seconds.

STEP 8: SENSOR OFF

After noting the peak reading, press the sensor control button again and ***release it immediately***. The Sensor and main display will turn off, and the fuel cell will recover. The microcontroller will automatically turn off the sensor after about 45 seconds and reset for the next sample.

STEP 9: FLASHLIGHT OFF

Turn the flashlight off whenever you are ready to do so. After detecting alcohol, the fuel cell may need a minute or so to recover. The recovery time increases with high concentrations of alcohol and with low operating temperatures (see page 10). No recovery is needed if no alcohol was detected.

STEP 10: RECORD RESULTS

You may want to record your results into a suitable log or by use of your body camera. Record the number of bars on the graph that light up. If no bars on the graph light up, record "Negative for Detectable Levels of Breath Alcohol".

Remember: **Five (5) Easy Steps for Successful Testing**

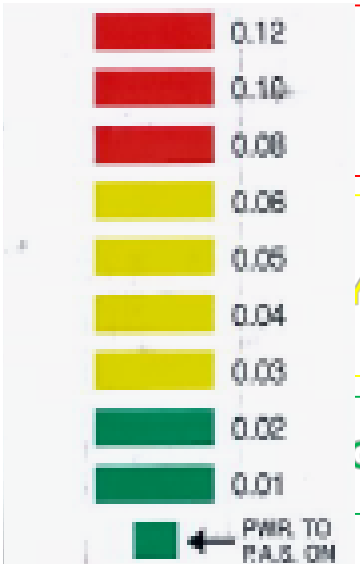
1. **Distance**: Position 5-7 inches
2. **Direction**: Aim Intake Port at mouth
3. **Talking**: Subject speaks
4. **Tap**: Sample Pump Light on Light off
5. **Read**: 5 - 20 seconds

Interpreting the Display

The device is intended for use as a **screening device** to detect alcohol in or around a person without the person's direct or active participation. Because of the passive nature of the device, it is **not possible to obtain *precise* readings of breath alcohol levels** (deep lung BrAC). The subject might be exhaling out of the corner of his mouth, or his breath might be deflected by drafts or other variables in the environment.

Accurate measurements can only be obtained with an evidential quality instrument, where the subject blows into a mouthpiece. The purpose of the device is to **alert** you that alcohol is present and may help you to quickly decide whether to utilize other field sobriety tests or to use an evidential breath tester in individual cases.

If the PAS Flashlight is used in still air at the optimum distance of 5-7 inches from the subject's mouth, the chart below will give you an ***approximate*** indication of the subject's breath alcohol concentration (BrAC). Roughly, the readings can be interpreted as follows:



	Subject ***MAY*** exceed the 0.08 or 0.10% BrAC legal limit for drivers of private vehicles
YELLOW bars lit	Subject ***MAY*** exceed the 0.04% BrAC legal limit for certain commercial vehicles and aircraft
GREEN bars lit	Alcohol is present

Approximate BrAC (%)

NOTE: In some situations, it is not practical to get the sensor as close as 5-7 inches from the subject's mouth. The PAS can be used at greater distances, but **readings will be lower**. As a rule of thumb, one less bar will light up for every 2 inches beyond the optimum 5-7 inches. Using the sensor at distances greater than 10 inches is not recommended for breath-alcohol sampling, because of the effect of drafts.

Low Temperature Operation

At low temperatures, fuel cells take longer to reach their peak readings of alcohol level. They also take longer to recover from each positive sample before you can take another. To overcome this problem, your device includes a thermostatically controlled heater that maintains a fuel cell temperature of 104◦F (40◦C).

Since the PAS Flashlight is normally used at night, the heater comes on automatically whenever you turn on the unit. The fuel cell reaches its operating temperature within a few minutes, although the exact time obviously depends on how cold it was to start with. The orange HTR indicator cycles on and off as the thermostat regulates the fuel cell temperature.

The ***sensitivity*** of the fuel cell is not affected much by temperature. A cold unit will work just fine, it's simply slower to respond and recover. You don't *have* to wait for the fuel cell to warm up.

OTHER APPLICATIONS

Alcohol in Enclosed Spaces

The PAS Flashlight is sensitive enough to detect background levels of alcohol in enclosed spaces such as vehicles and rooms. This is useful for detecting drinking by minors in cars or at social gatherings, without sampling each individual's breath.

To detect alcohol in an enclosed space, run the PAS sensor to sample air drawn from anywhere in the space. Just make sure you don't sample fresh air from an open door or window.

Crash Victims

If a crash victim is unconscious, it can be important to know whether he or she has been drinking. This will often determine the best course of treatment. Even if the victim is conscious, it is important to know whether alcohol might have contributed to the accident. This will influence the course of any investigation.

Any crash victim who is breathing can be checked with the PAS. An unconscious subject might be exhaling from the nose instead of the mouth, but the procedure is the same. You only need a few seconds to take the breath sample, and you can move away while the display is reaching its peak level.

Open Beverage Containers/ Spiked

With open container law, the sensor is invaluable in determining whether a beverage container has alcohol in it. This is easily done by sampling the air above the container.

Warning! The air over an alcoholic drink, even a beer, has much more alcohol in it than a drinker's breath. It is therefore easy to overload the sensor when checking beverage containers. Overloading should be avoided whenever possible, because it takes the fuel cell longer to recover, and its performance will gradually deteriorate.

To check a container for alcohol, angle the intake port away from the container opening to dilute the sample. If your first reading is inconclusive, you can always take another one with less dilution.

The PAS Flashlight readings should not be taken as an accurate indication of the strength of the drink. However, with a little experience you should be able to

distinguish between beer, wine, and spirits. Take the time to practice on various drinks and develop an operating style that avoids overloading the instrument.

CAUTION! Be aware that certain citrus-based beverages, flavored waters, and some Starbucks coffees have been **reported to give a positive reaction** when sampled with a Passive Alcohol Sensor.

For Example: Citrus-Based beverages such as Mountain Dew, Mello Yello, Code Red, etc., may give positive readings. It's not clear if these beverages are in fact fermenting and producing low levels of alcohol, or if certain ingredients are reacting chemically with the fuel cell in some way to provide a positive reading.

To minimize confusion, always retest subjects (individuals) about 15 minutes after an initial positive reading to verify true alcohol presence and not the result of residual mouth alcohol from these types of beverages. However, individuals may "spike" these drinks to cover up their actual alcohol consumption. Wait 15 minutes and retest the subject (following sampling instructions on page 7) to verify if they are abusing alcohol.

Further, always conduct an "air blank" between samplings to ensure the fuel cell sensor is clear of any residual alcohol carried over from the prior sample. "Air Blanks" are done by simply activating the pump and processing a sample of alcohol-free ambient air. Observe the display for approximately five to ten seconds after the sample pump has stopped. If no bars light up you may assume the sensor is free of any carry-over and you may proceed with sampling the next subject (individual).

Secondary Investigative Light (On back of device)

To use the Secondary Investigative Light, turn on the main Flashlight switch. This will also turn on the Secondary Investigative light on the back of the flashlight body.

Option1: Green Horizontal Gaze Nystagmus Test (HGN) Light

The HGN test is one of three field sobriety tests developed by the National Highway Traffic Safety Administration (NHTSA). For more information on administering the HGN Test can be found at nhtsa.dot.gov

Option 2: Blue Ultraviolet (UV) Light

Hold the UV light several inches above any item or surface to illuminate any UV-sensitive object or residue.

*CAUTION – Do NOT shine the Ultraviolet (UV) light directly into eyes.

CLEARING OVERLOADS

If your PAS sensor is overloaded, it will take a few minutes to recover.

1. Turn on the flashlight to activate the fuel cell heater. This speeds recovery.

2. Turn off the PAS Sensor. This also speeds recovery.

3. After 5 minutes, check the unit with an alcohol-free air sample. If within approximately 20 seconds, bars still light up in the display, repeat steps 2 and 3 as necessary until the overload has been completely cleared.

4. Your unit is now ready for use.

COMMON QUESTIONS

Q. ***What if the unit detects alcohol, but seems to be giving low readings?***

A. This problem is usually caused by using the unit too far from the subject's mouth, or with the inlet port off to one side (inaccurate positioning). It can also be caused by a blocked inlet or outlet port, perhaps by your own fingers. Your unit might need recalibrating.

Q. ***Why does the display light up several bars with no alcohol present?***

A. This can be due to background levels of alcohol vapor in the air, but it is more likely that the fuel cell has not recovered from the previous positive reading. If the problem persists when you check a sample of fresh air, follow the procedure for clearing overloads (see above). Also, frequently switching the sensor on without a brief waiting period of a few seconds between switching may result in bars lighting up.

Q. ***Why does my PAS Flashlight appear to be too sensitive?***

A. You might be using the instrument to close to the subject's mouth, or it might need to be recalibrated. Certain mouth washes or freshly applied perfume or cologne may give high readings temporarily. Alcohol from these sources dissipates rapidly. Also, always allow the sensor fuel cell to rest a few seconds between sampling to clear itself of any residual electrical activity.

Q. ***Why won't the flashlight come on?***

A. If the blue LGT indicator comes on, but the flashlight does not, you have a burned out lamp module. Otherwise, you might have flat batteries.

Q. ***Why is the red LED lamp flashing?***

A. The batteries are discharged and could give a false reading. Charge them before using the unit.

Q. ***Why is my battery discharging so quickly?***

A. Be sure to follow the Reset procedure when recharging the battery. To reset the charge, and gain up to 20-35 minutes additional charge, simply remove the device from the charging cradle for a few seconds and then replace. When the GREEN LED begins to blink, an additional 20-35 minutes of charge should be gained.

Q. ***What if the orange HTR indicator is ALWAYS on when the flashlight is on?***

A. If the HTR indicator fails to cycle on and off as the thermostat regulates the fuel cell temperature, you may have a defective thermostat. Please return your unit for service.

Q. ***What if I dropped my PAS Flashlight on the ground?***

A. The instrument is probably just fine. If it doesn't work, the batteries might have been crushed by their own weight. Check for this before assuming that the unit needs repair.

Q. ***What if there seems to be something wrong with my unit?***

A. Call PAS Systems Service Dept. at 800-660-7643 for assistance. Do not attempt to repair the device yourself. There are no user serviceable parts inside, and you will void the warranty. Please refer to Service section on page 17.

DOS AND DON'TS

- In cold weather, turn on the flashlight (and fuel cell heater) before using the PAS Sensor. This reduces the response time.
- Hold the unit with the inlet port 5-7 inches from the subject's mouth.
- Keep the subject speaking when sampling.
- Keep your fingers away from the inlet and outlet ports.
- Turn off the PAS when not in use.
- Treat your unit with the respect deserved by any precision instrument. Protect it from temperature extremes (don't leave it on your dash in the midday sun).
- Remove the battery pack if the unit is not going to be used for more than a month.
- Use only the rechargeable battery pack obtained from PAS Systems International. These are industrial grade batteries with much higher capacity and longer life than the consumer grade equivalents.
- Have the calibration of your unit checked once a year, or whenever it seems to be losing sensitivity.

- Take strong samples from right over an alcoholic beverage. The fuel cell takes a long time to recover, and frequent overloads will damage it.
- Sample raw cigarette smoke. This rapidly damages the fuel cell.
- Allow liquids to enter the inlet or outlet ports.
- Allow the metal case of the flashlight to come into contact with metal parts of the vehicle when charging.
- Use the PAS Flashlight where it is exposed to high winds that can blow the breath sample away from the inlet port. At the side of a busy road, subjects should be checked in their vehicles whenever possible.
- Subject the instrument to abuse such as excessive shocks.
- Attempt to dismantle the unit. This will void the warranty.
- Clean the unit or case with chemical solvents. You might damage the fuel cell permanently.

TECHNICAL SPECIFICATIONS

Product Name	PAS Flashlight Passive Alcohol Sensor.
Function	Combines police-grade flashlight with device for detecting low levels of airborne alcohol in exhaled breath, in vehicles and other enclosed spaces, or over beverage containers.
Flashlight	1000 lumen, 3-Mode LED with optimized light dispersion through an intense center beam.
Alcohol Sensor	Platinum Electrochemical fuel cell generates an electrical current in response to alcohol vapor. The microcontroller will automatically turn off the sensor after about 45 seconds, should you forget to turn off the sensor.
Cell Heater	Built-in heater regulates fuel cell temperature at 104◦F (40◦C) whenever the flashlight is on.
Specificity	Fuel cell detects only alcohol. It is unaffected by acetone, paint or glue fumes, foods, confectionery, methane, and practically any other substance likely to be found in the breath.
Calibration	Performed at the factory. Additional field calibration procedure provided. Calibration checks are recommended once a year or more frequently if the unit appears to be losing sensitivity.
Air Sample	Pump runs for 5 seconds and draws in a 1 cu. in. (15ml) air sample.
Display	Color-coded 9-element LED bargraph display.
Peak Reading	2-10 sec at 104◦F(40C). Longer at lower temps if fuel cell heater isn't on.
Recovery Time	30 seconds - 2 minutes after a positive reading; longer if fuel cell is overloaded or heater is off.
Power Supply	Nickel Metal Hydride (NiMH) rechargeable battery (no memory). Charger operable from 12-volt DC or 110-volt AC power.
Battery Capacity	65 minutes of continuous use on High; 190 minutes on low, if charged using the Reset procedure. Store unit on the charger to keep fully charged between use (no memory).
Charging Time	Approx. 3.5 hrs to recharge fully discharged batteries using the AC/DC Fast Charger Cradle Unit and the Reset procedure.
Environmental	Operating temperature range: 0 to 104◦F (-18 to +40◦C). The PAS V housing is weather resistant.
Dimensions	12" (300mm) long x 1.5" (38mm) diameter, increasing to 2.2" (56mm) at head.
Weight	1.5 lb. (0.68kg) with batteries

RETURN POLICY

If you receive an order that appears to be defective or damaged, please contact PAS Systems at 800-660-7643 within 10 days of receipt of the shipment. PAS Systems will replace the equipment, file any necessary claims, and correct any shipping errors.

To return an order for any other reason, contact PAS Systems at 800-660-7643 within 10 days of receipt of the order and explain the reason for the return. A 20% restocking fee will be assessed and freight charges are non-refundable.

SERVICE

Your PAS V is a self-contained unit. Other than the batteries, there are no user-serviceable parts inside. If you conclude that your PAS Flashlight is not functioning correctly, it must be returned to PAS Systems International for service.

Carefully package the unit. Place the package in a suitable shipping box and send to the address below. We suggest shipping UPS or Federal Express, etc., rather than parcel post for tracking purposes. PAS Systems recommends insuring the package for the original purchase price of the unit.

If your unit is out of warranty, you will be provided a service estimate for your approval, before repairs begin.

Ship units requiring service to:

PAS Systems International
Attn: Service Dept.
215 Southport Dr. Suite 400
Morrisville, NC 27560

Tel: (800) 660-7643

WARRANTY

PAS Systems International, provides a one (1) year WARRANTY from the date of purchase of the instrument should the product exhibit a manufacturing defect, or defect in workmanship. Products showing unusual wear, abuse, alteration, items dropped, or accidentally broken, will not be covered under the WARRANTY. In addition the warranty does not cover the replacement of bulb or batteries. The Company will provide one (1) free calibration service during the WARRANTY period should such re-calibration be necessary.

Please call **1-800-660-7643** anytime you have any questions.
Your satisfaction is very important to us.

An Extended Warranty is Available
******** Providing 3-yr Warranty coverage. ********
Call 800-660-7643 for details.

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NOTES

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