



**INSTRUMENTS**

# **RP-3R Pump for GX-3R and GX-3R Pro Operator's Manual**



*Northside Sales, Co.*

Safety & Industrial Products

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## Product Warranty

RKI Instruments, Inc. warrants gas alarm equipment sold by us to be free from defects in materials, workmanship, and performance for a period of one year from date of shipment from RKI Instruments, Inc. Any parts found defective within that period will be repaired or replaced, at our option, free of charge. This warranty does not apply to those items which by their nature are subject to deterioration or consumption in normal service, and which must be cleaned, repaired, or replaced on a routine basis. Examples of such items are:

- a) Absorbent cartridges
- b) Pump diaphragms and valves
- c) Fuses
- d) Batteries
- e) Filter elements

Warranty is voided by abuse including mechanical damage, alteration, rough handling, or repair procedures not in accordance with the operator's manual. This warranty indicates the full extent of our liability, and we are not responsible for removal or replacement costs, local repair costs, transportation costs, or contingent expenses incurred without our prior approval.

*THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY AND ALL OTHER WARRANTIES AND REPRESENTATIONS, EXPRESSED OR IMPLIED, AND ALL OTHER OBLIGATIONS OR LIABILITIES ON THE PART OF RKI INSTRUMENTS, INC., INCLUDING BUT NOT LIMITED TO, THE WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL RKI INSTRUMENTS, INC. BE LIABLE FOR INDIRECT, INCIDENTAL, OR CONSEQUENTIAL LOSS OR DAMAGE OF ANY KIND CONNECTED WITH THE USE OF ITS PRODUCTS OR FAILURE OF ITS PRODUCTS TO FUNCTION OR OPERATE PROPERLY.*

This warranty covers instruments and parts sold to users by authorized distributors, dealers, and representatives as appointed by RKI Instruments, Inc.

We do not assume indemnification for any accident or damage caused by the operation of this gas monitor, and our warranty is limited to the replacement of parts or our complete goods.

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**WARNING:**     *Understand manual before operating and for proper battery type. Substitution of components may impair intrinsic safety. To prevent ignition of a hazardous atmosphere, batteries must only be changed in an area known to be nonhazardous. Not tested in oxygen enriched atmospheres (above 21%).*

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**CAUTION:**     *Read and understand the GX-3R and GX-3R Pro Operator's Manual before using the RP-3R.*

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## Overview

This manual describes: the RP-3R pump, RP-3R maintenance, and operation of the RP-3R with the GX-3R and GX-3R Pro. A parts list at the end of this manual lists replacement parts and accessories for the RP-3R.

## Specifications

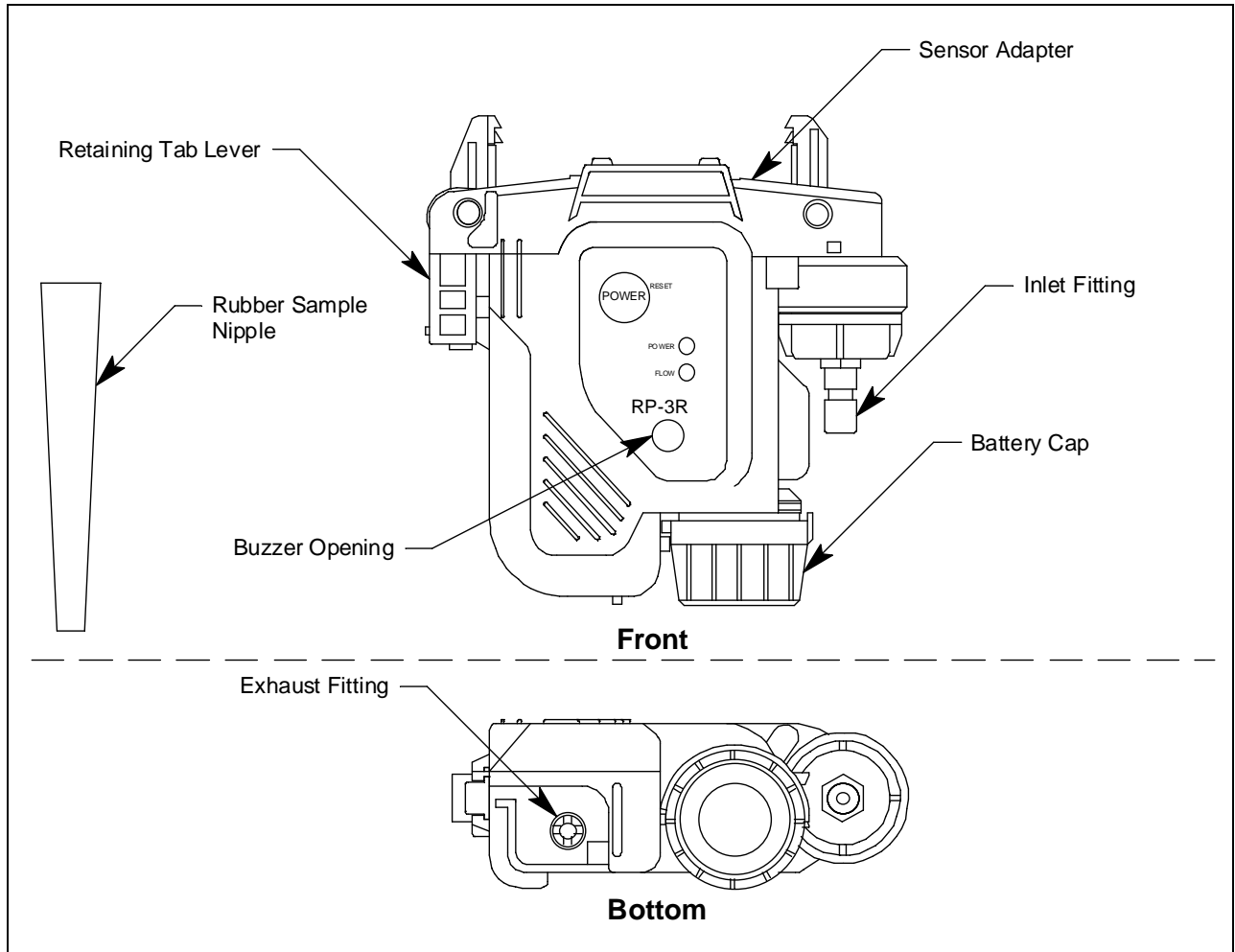
Table 1 lists specifications for the RP-3R pump.

**Table 1: Specifications**

<b>Power Supply</b>	1 AA size alkaline
<b>Operating Time</b>	Higher-flow mode: 10 hours minimum at 25°C Lower-flow mode: 16 hours minimum at 25°C
<b>Sample Flow Rate</b>	Higher-flow mode: 0.50 LPM (liters per minute) Lower-flow mode: 0.35 LPM (liters per minute)
<b>Maximum Tube Length for Optional Sample Hose</b>	100 feet
<b>Operating Temperature &amp; Humidity</b>	-20°C to +50°C, 0 - 95% Relative Humidity (non-condensing)
<b>Dimensions</b>	29 (D) x 82 (W) x 96 (H) mm, rubber sample nipple not included
<b>Weight</b>	Approximately 120 g (including alkaline battery)
<b>Alarm Indications</b>	Low Flow & Low Battery
<b>Safety/Regulatory (when used with the GX-3R or GX-3R Pro)</b>	<p><u>ATEX</u> (Certificate Number Presafe 17 ATEX 11584)</p> <ul style="list-style-type: none"> <li>• II1G Ex ia IIC T4 Ga (-20°C to +50°C Toshiba LR6)</li> <li>• II1G Ex ia IIC T4 Ga (-20°C to +40°C Duracell MN1500)</li> <li>• II1G Ex ia IIC T3 Ga (-20°C to +50°C Duracell MN1500)</li> </ul> <p><u>IECEX</u> (Certificate Number IECEX PRE 17.0070)</p> <ul style="list-style-type: none"> <li>• Ex ia IIC T4 Ga (-20°C to +50°C Toshiba LR6)</li> <li>• Ex ia IIC T4 Ga (-20°C to +40°C Duracell MN1500)</li> <li>• Ex ia IIC T3 Ga (-20°C to +50°C Duracell MN1500)</li> </ul>

## Description

The RP-3R pump is a sample drawing accessory for the GX-3R and GX-3R Pro. It consists of the pump unit and the rubber sample nipple.



**Figure 1: Component Location**

### Pump Unit

The pump unit is housed in a red plastic case. The silver inlet fitting on the right side of the pump unit allows for connection of a rubber sample nipple or a hose and probe. The inlet fitting's clear holder retains 2 hydrophobic membranes and a mesh disk.

The black cap at the bottom right of the pump unit allows for battery compartment access. The pump unit needs one AA alkaline battery.

The exhaust fitting is located on the bottom left of the pump unit, next to the battery compartment.

A POWER button, a buzzer opening, a POWER LED, and a FLOW LED are located along the middle front of the pump unit.

The sensor adapter at the top of the pump unit mates to the GX-3R or GX-3R Pro. There are different sensor adapters for each instrument type. When installed, the text on the front of the GX-3R/GX-3R Pro and RP-3R should be facing the same way.

A black retaining tab lever on the left side of the RP-3R makes installing/removing the GX-3R or GX-3R Pro easier.

## Rubber Sample Nipple

A cone-shaped 4-inch long rubber sample nipple is included with the RP-3R. It can be installed by pushing the larger end over the inlet fitting. The smaller end can be inserted in a hole or some other access point to sample the environment.

## Optional Hose & Probe

A sample hose and probe (optional accessories) may be connected to the inlet fitting. Sample hose lengths are available from 10 feet to 100 feet (see Parts List at the end of the manual).

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**CAUTION:** *Sample hose lengths of more than 100 feet are not recommended for the RP-3R because of flow rate reduction.*

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## Normal Operation

1. Start up the GX-3R or GX-3R Pro and enter normal operation as described in the appropriate Operator's Manual.
2. Press the black retaining tab lever on the left side of the RP-3R.

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**WARNING:** *Installing the GX-3R or GX-3R Pro onto the RP-3R without pressing the black retaining tab lever may result in damage to the RP-3R.*

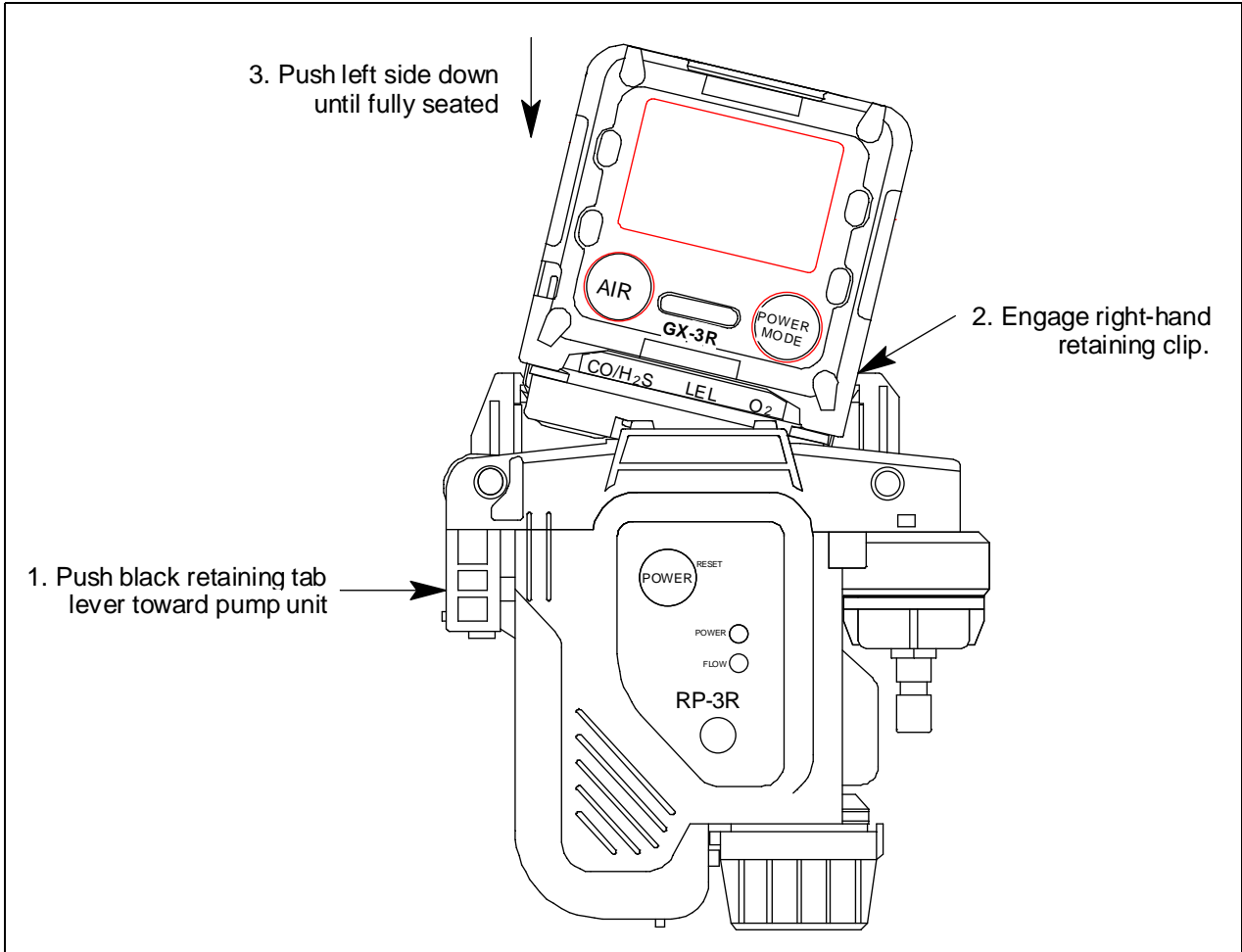
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3. Be sure the front labels on the GX-3R or GX-3R Pro are facing the same way as the front labels on the RP-3R.
4. When viewing the GX-3R or GX-3R Pro and RP-3R from the front, engage the RP-3R's right-hand retaining clip with the GX-3R or GX-3R Pro.
5. Push the left side of the GX-3R or GX-3R Pro down until the instrument is seated in the RP-3R. Release the black retaining tab lever and ensure that both retaining clips are fully engaged. When fully engaged, the GX-3R or GX-3R Pro should not move around at all.

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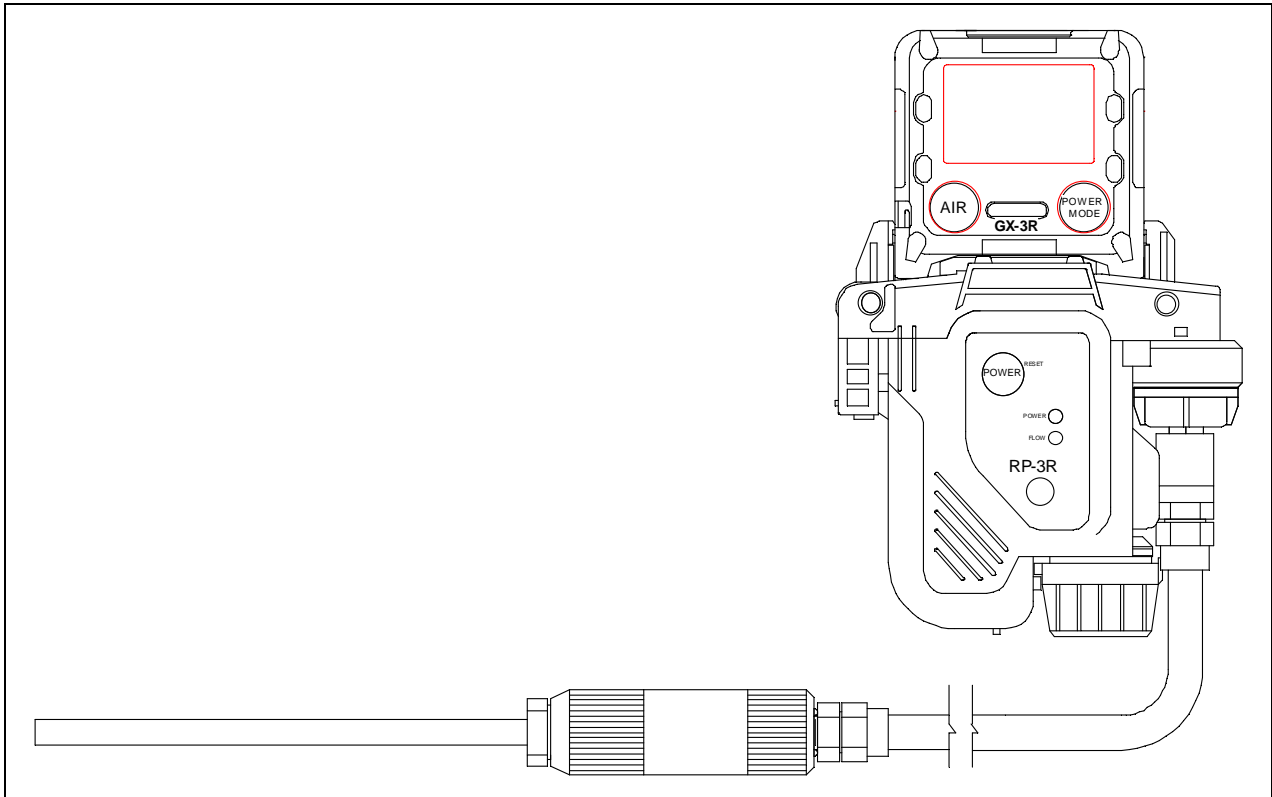
**CAUTION:** *If the RP-3R is not fully engaged, the unit will not respond to the target gases properly.*

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**Figure 2: Connecting the RP-3R to the GX-3R**

6. Attach the rubber sample nipple or optional hose and probe to the inlet fitting.



**Figure 3: Connecting the Optional Hose and Probe**

7. Turn on the RP-3R by pressing and holding the POWER button until the RP-3R beeps and the POWER LED turns green.

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**WARNING:** *While the GX-3R or GX-3R Pro is installed in the RP-3R, the pump must be on for the GX-3R or GX-3R Pro to function as a gas detection monitor.*

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8. Go to the area to be sampled.

Rubber sample nipple: Insert the rubber sample nipple into the vessel or enclosed area. Allow the RP-3R to sample for 90 seconds before observing the reading on the GX-3R or GX-3R Pro.

Hose and probe: Hold the probe in the area to be sampled. If necessary, the hose and probe may be lowered into the sample area. Allow the pump unit to sample for 90 seconds before observing the reading on the GX-3R or GX-3R Pro.

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**NOTE:** The hose and probe do not have their own hydrophobic filters. Take care to not draw liquid through the hose and probe.

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9. Monitor the GX-3R or GX-3R Pro's gas readings and take appropriate action if gas alarms occur.
10. When sampling is complete, turn off the RP-3R by pressing and holding the POWER button until the RP-3R sounds a long beep and the POWER LED turns off.
11. Turn off the GX-3R or GX-3R Pro.
12. Press the black retaining tab lever on the left side of the RP-3R.

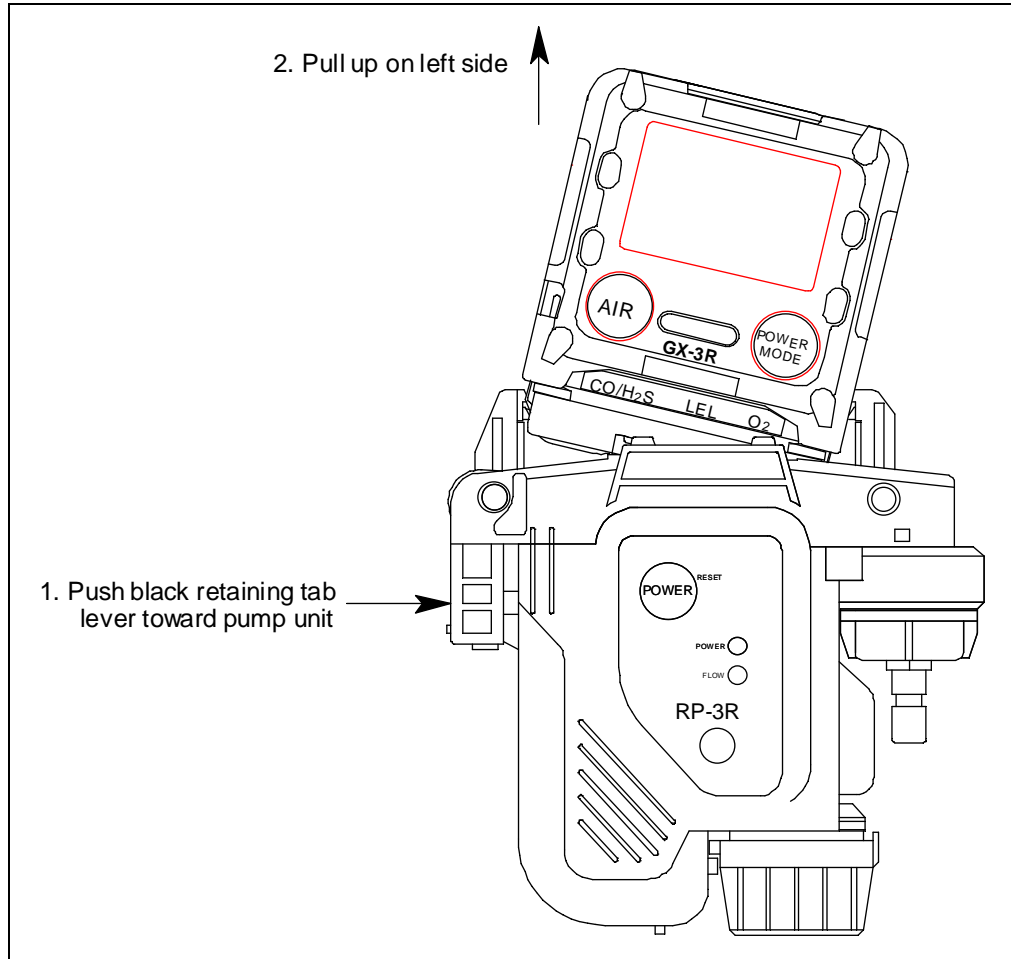


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**WARNING:** *Removing the GX-3R or GX-3R Pro from the RP-3R without pressing the black retaining tab lever may result in damage to the RP-3R.*

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13. Pull up on the left side of the GX-3R or GX-3R Pro when viewing the instrument from the front.



**Figure 4: GX-3R Removal**

## Switching Flow Rates

The RP-3R can operate in a higher-flow mode (standard) or a lower-flow mode.

Flow Mode	LED Indication
Higher-flow mode	FLOW LED steadily yellow
Lower-flow mode	FLOW LED flashes yellow

1. With the RP-3R turned on, press and hold the POWER button for 1 second.
2. The FLOW LED will change state (ie. from flashing to steady or vice versa).

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**NOTE:** At temperatures below -10°C, the RP-3R must operate in higher-flow mode. If operating in lower-flow mode, the RP-3R will automatically switch to higher-flow mode at -10°C. Any attempt to switch to lower-flow mode will be blocked.

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## Alarms

The table below outlines the alarms that may occur on the RP-3R.

Alarm Type	Visual Indications	Audible Indications	Other Indications	Recommended Action
<b>Low Battery</b>	POWER LED flashing	none	none	Replace the battery.
<b>Dead Battery</b>	POWER LED flashing	constant buzzer	none	Replace the battery.
<b>Low Flow</b>  <i>NOTE: A low flow alarm may get combined with a low or dead battery alarm since a low battery voltage may cause the pump to stop working.</i>	FLOW LED quickly flashing	intermittent buzzer	pump stops	<ul style="list-style-type: none"> <li>• Check the rubber sample nipple and filters to make sure they are clear.</li> <li>• If a hose and probe are used, check them for kinks or obstructions.</li> <li>• Press and release the POWER button to reset the alarm.</li> <li>• If the low flow condition persists, the pump may need servicing.</li> </ul>

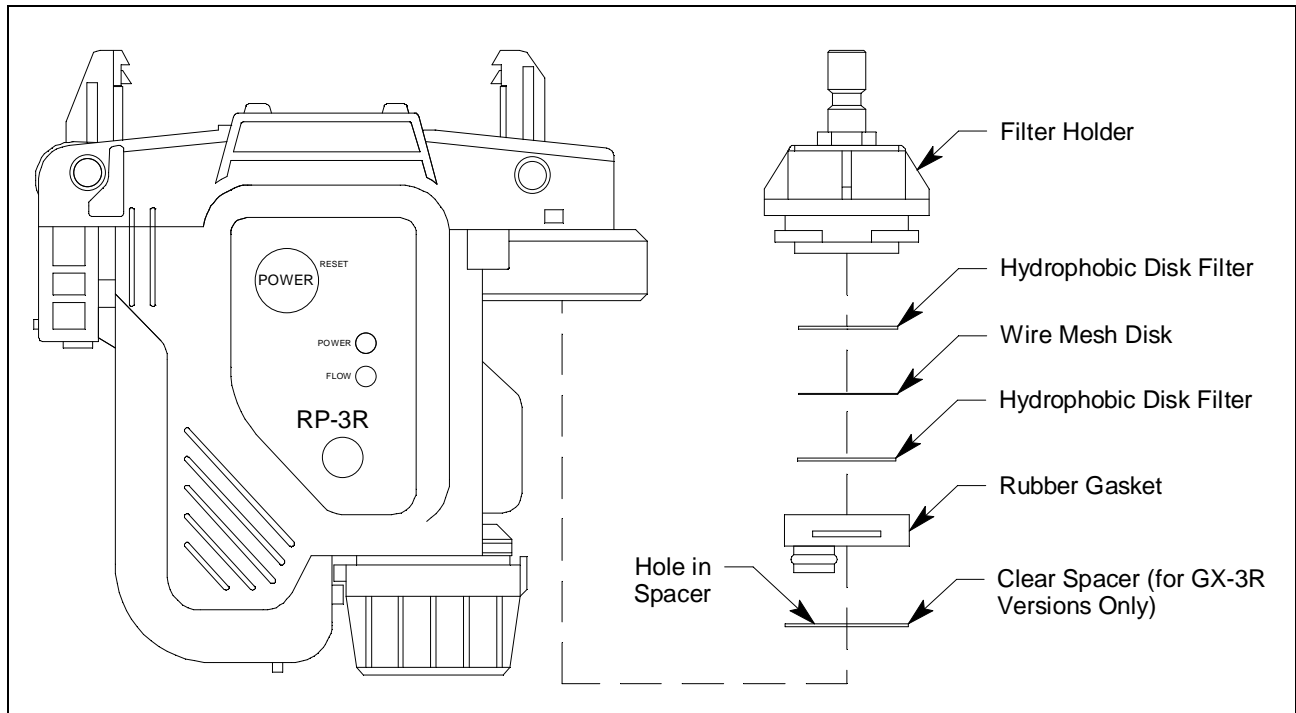
## Maintenance

### Replacing The Battery

1. Push down and rotate the black battery cap counterclockwise until it stops.
2. Pull the battery cap away from the pump unit.
3. Remove the old battery.
4. Insert the new AA alkaline battery + end first into the pump unit. The battery orientation is shown on the back of the pump unit.
5. Reinstall the black battery cap by pushing it down and turning it clockwise until it stops.

### Replacing the Hydrophobic Disk Filter and Wire Mesh Disk

1. Grasp the clear filter holder (under the inlet fitting) and turn it 1/4 of a turn counterclockwise.
2. Pull the filter holder away from the pump unit.
3. The hydrophobic disk filters and wire mesh disk are located in the pump unit and are retained by a rubber gasket. Gently pull out the rubber gasket with needle nose pliers taking care not to damage the gasket. The GX-3R version of the RP-3R has a clear spacer below the gasket that may come out. The GX-3R Pro version of the RP-3R does not have this spacer.



**Figure 5: Changing the Hydrophobic & Wire Mesh Filters**

4. Remove the old hydrophobic filters and/or wire mesh disk from the gasket. A hydrophobic filter is located on either side of the wire mesh disk.
5. Install the new hydrophobic filters and/or wire mesh disk making sure a hydrophobic filter is located on each side of the wire mesh disk.

6. For the GX-3R version: If the clear spacer below the rubber gasket came out when you removed the gasket, reinstall the spacer. Be sure the hole in the spacer lines up with the hole in the housing.
7. Reinstall the gasket/filters/mesh into the pump unit.
8. Align the two tabs on the bottom of the filter holder with the two slots in the pump unit. Push the filter holder into the pump unit and turn it 1/4 turn clockwise until it snaps into place.

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## Parts List

Table 2 lists replacement parts and accessories for the RP-3R pump.

**Table 2: Parts List**

<b>Part Number</b>	<b>Description</b>
07-2006	Gasket, filter/screen retaining
07-6051	O-ring, for battery compartment
17-1001RK	Rubber sample nipple
21-1833RK	Filter holder, clear plastic, with inlet fitting
21-1957	Battery cap
21-1958	Clear spacer underneath the filter/screen retaining gasket, for GX-3R versions only
33-0159RK	Hydrophobic disk filter
33-1112RK	Wire mesh disk filter
49-1120RK	AA alkaline battery
80-0009RK-XX	Sample hose (optional). Replace "XX" with length in feet. Available lengths for the RP-3R are 10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 75, 100 feet.
80-0150RK	Sample probe with dust filter (optional)