



Portable Gas Detectors You Can Count On



## GCT External Pump














# User's Manual

G A S C L I P T E C H . C O M

## CONTENTS

<b>WARNING STATEMENTS/AVERTISSEMENT .....</b>	<b>1</b>
<b>READ FIRST BEFORE OPERATION .....</b>	<b>2</b>
Description.....	2
<b>DEVICE COMPONENTS .....</b>	<b>3</b>
LED Definitions.....	4
<b>BASIC OPERATIONS.....</b>	<b>5</b>
Set Up.....	5
Turning On the Device.....	5
Blocked Flow Test .....	5
Bump Test.....	6
Turning Off the Device.....	7
Low Battery Warning .....	7
<b>DEVICE MAINTENANCE .....</b>	<b>8</b>
Battery .....	8
Storage .....	8
Filters .....	9
Cleaning Recommendations and Routine Care .....	9
<b>ACCESSORIES AND REPLACEMENT PARTS .....</b>	<b>10</b>
<b>DEVICE SPECIFICATIONS .....</b>	<b>11</b>
<b>LIMITED WARRANTY .....</b>	<b>12</b>
<b>CONTACT INFORMATION .....</b>	<b>12</b>

### WARNING STATEMENTS/AVERTISSEMENT

-  WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY  
AVERTISSEMENT – LA SUBSTITUTION DE COMPOSANTS PEUT AMÉLIORER LA SÉCURITÉ INTRINSÈQUE
-  WARNING – Use only types of batteries listed in Instruction Manual  
AVERTISSEMENT – Utilisez uniquement les types de piles répertoriés dans le manuel d'instructions
-  DO NOT charge the instrument in a hazardous location.  
NE PAS charge l'appareil dans un endroit dangereux.
-  DO NOT use IR communications when an explosive atmosphere may be present.
-  Only use Gas Clip Technologies chargers and parts in the GCT External Pump. Non-approved parts are considered unsafe and will void the warranty.
-  Before each use, check that all possible inlets, outlets and alarm ports of the GCT External Pump, as well as the attached detector, hoses or any accessories are clear of any obstructions i.e., debris, liquids or other blockages.
-  Utilize a qualified recycler to dispose of the device's lithium battery. Check local regulations for proper disposal.
-  The battery may present a fire or chemical burn hazard if mistreated. Do not disassemble, heat above 112°F (100°C) or incinerate. Contact Gas Clip Technologies for replacement instructions. Use of another battery may present a risk of fire or explosion.
-  DO NOT charge the instrument in temperatures above 113°F (45°C) or below 32°F (0°C).
-  Keep new and used batteries away from children.
-  Strong electromagnetic interference (EMI) may cause incorrect operations.
-  The GCT External Pump should be used only when remote sampling. The calibration cap must be removed from the detector during normal operation to ensure that the detector can respond in timely fashion.
-  If you suspect any malfunction or have any technical problems, contact GCT at 1-877-525-0808.

### **READ FIRST BEFORE OPERATION**

The GCT External Pump extends the capabilities of Gas Clip Technologies' diffusion gas detectors (e.g. Single Gas Clip, Multi Gas Clip, MGC Simple). Before operation, ensure that you have been properly trained on the use of the accessory and the appropriate actions to take in the event of an alarm. Additionally, it is imperative that all users read and follow this user manual.

### **DESCRIPTION**

The GCT External Pump is an accessory device to be used with Gas Clip Technologies portable gas detectors, powered by a rechargeable battery. The GCT External Pump is worn on the user's body and does not require regular interaction to perform its function.

The device draws sample air from an inlet and delivers it through an output port and a hose to a compatible calibration cap mounted on a GCT gas detector. During operation, a hose that is up to 75 ft. (23m) long with 1/8" ID can be connected to the inlet to allow environmental sampling in confined spaces before entry into the space.

For hose lengths up to 50 ft. (15m) GCT offers tubing that will not oxidize, is able to bend around sharp curves, and easily works with GCT External Pump accessory fittings. For tube lengths over 50 ft. (15m), GCT recommends using tubing with even higher resistance to reactive chemicals (e.g. H<sub>2</sub>S). Please contact GCT for tubing selection recommendations.

The GCT External Pump should be used only when remote sampling. Once the area in question has been cleared for entry, disconnect the GCT External Pump and calibration cap from the gas detector in order to resume normal detector operation.

## DEVICE COMPONENTS

Entry	Description
1	Infrared Communication Window
2	Audible Alarm
3	Power LED
4	Power Button
5	Charging LED
6	Flow LED
7	Alligator Clip
8	Pellet Filter
9	Hydrophobic Filter
10	Gas Inlet Port
11	Certification Label
12	Model and Serial Label
13	Gas Outlet Port



The GCT External Pump is a handheld portable gas sampling pump and contains the following:

1. Rechargeable Li-ion battery.
2. An audible alarm that indicates low battery and blocked flow
3. Visual alarms that indicate battery, pump and charging status.

The gas inlet port connects to a flexible polymer tube that can be up to 75 ft. (23m) long. The hose is compatible with a variety of sampling accessories. The gas outlet port connects to the calibration cap and detector with flexible polymer tubing.

\*A 10 ft. (3m) sampling tube and a 3 ft. (0.9m) connection hose are provided with the purchase of a GCT External Pump (GCT-XP).

## LED DEFINITIONS

LED	Pattern	Description	Status
Flow LED	<p>-----</p> <p>*****</p> <p>** ** * * *</p>	<p>LED OFF</p> <p><b>GREEN</b> solid</p> <p><b>RED</b> fast flash &amp; beep</p>	<p>Pump motor is OFF</p> <p>Pump is ON, normal operation</p> <p>Warning: Pump is blocked</p>
Power LED	<p>-----</p> <p><u>During Pump Operation:</u></p> <p>-----</p> <p>* -----</p> <p>* ----- *</p> <p>** * ----- ** *</p> <p>***** _ ***** _</p> <p>** * ----- ** * ----- ** *</p> <p>* * * * * * * * * * *</p>	<p>LED OFF</p> <p>LED OFF (Flow LED solid <b>GREEN</b>)</p> <p><b>ORANGE</b> slow flash every 2 sec.</p> <p><b>ORANGE</b> flash every sec.</p> <p><b>RED</b> fast flash &amp; beep every 10 sec.</p> <p><b>RED</b> faster flash &amp; beep every 5 sec.</p> <p><b>RED</b> very fast flash &amp; beep every 2 sec.</p> <p><b>RED</b> very fast flash &amp; very fast beep</p>	<p>Power OFF mode</p> <p>Battery &gt; 40%</p> <p>Battery between 20% to 40%</p> <p>Battery &lt; 20%</p> <p>Warning: &lt; 20 min. left</p> <p>Warning: &lt; 10 min. left</p> <p>Warning: &lt; 5 min. left</p> <p>Powering down</p>
Charging LED	<p>-----</p> <p>*** _ _ _ _ ** *</p> <p>* -----</p>	<p>LED OFF</p> <p><b>ORANGE</b> flash equal on and off</p> <p><b>GREEN</b> slow flash every 2 sec.</p>	<p>Not charging</p> <p>Charging in progress</p> <p>Fully charged</p>

## BASIC OPERATIONS

### SET UP

Connect a 3 ft. hose from the gas outlet port to a Gas Clip Technologies detector with a calibration cap. Next, connect a 10 ft. sampling hose from the gas inlet port to a diffusion stone. Accessories such as the Quick Disconnect, Sampling Probe or Telescoping Sampling Probe can also be attached to the GCT External Pump with various lengths of sampling hose (up to 75 ft.).



### TURNING ON THE DEVICE

To activate the GCT External Pump, press and hold down the power button for 5 seconds. Once the device is activated, the startup sequence will consist of the following:

1. Power LED is green and begins to flash slowly.
2. Audible alarm chirps.
3. Flow LED is green and begins to flash slowly.

### BLOCKED FLOW TEST

It is critical to check if the pump is fully operational before each day's use. This is accomplished by conducting a blocked flow test. With the power on, block the free end of the sampling hose which is attached to the gas inlet port. The GCT External Pump will display the following behavior:

- 1) The pump motor shuts down.
- 2) The audible alarm beeps continuously indicating a flow fault.
- 3) The flow LED turns red and flashes quickly.

Upon successful completion of the blocked flow test, press the power button to reactivate the device.

**⚠ Warning:** Failure to detect a block may indicate a leak in the sampling system.

If the GCT External Pump fails the blocked flow test, perform the following checks:

1. Check the gas inlet port and gas outlet port for blockage.
2. Check pellet filter and hydrophobic filter for blockage.
3. Check all attached sampling hoses for leakage.
4. Once the blockage and/or leakage has been resolved, press the power button to reactivate the device.

Users must perform these operational checks before each use.

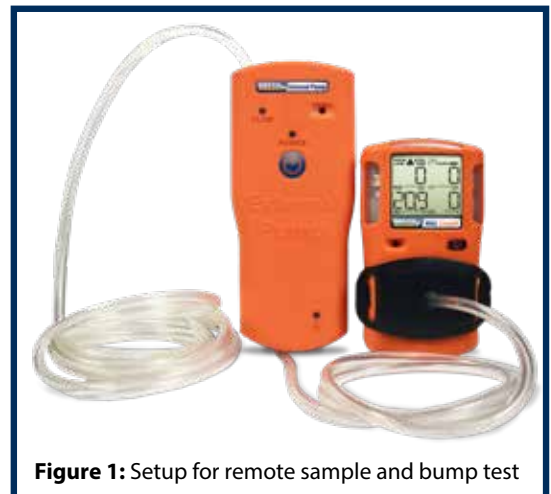
If the audible alarm does not activate when the blocked flow test is performed, do not use the GCT External Pump. This could be an indication that the device is faulty and would lead to inaccurate readings by gas detection devices. Failure to follow the instructions above can result in serious personal injury or death.

## BUMP TEST

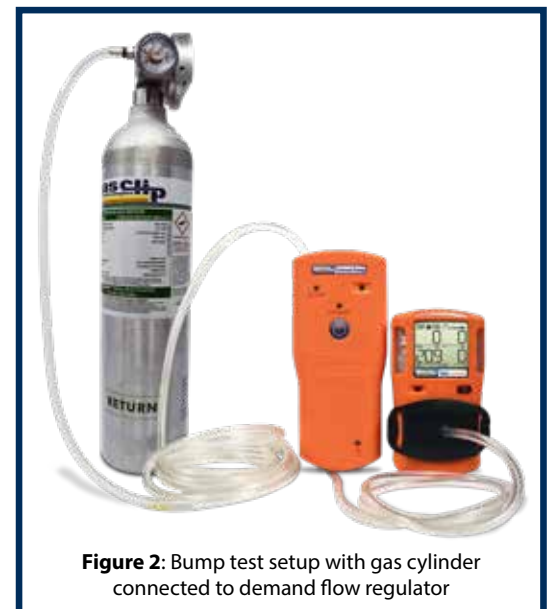
When bump testing a detector connected to the GCT External Pump, please refer to the bump test instructions in that specific detector's user's manual since the instructions for different detectors may vary.

Gas Clip Technologies recommends performing the bump test of a GCT detector with the GCT External Pump connected as described below.

1. Connect the detector, calibration cap, GCT External Pump and hoses as seen in **Figure 1**.
2. Check the following connections for a tight fit—
  - Calibration cap snapped over the detector's sensor ports
  - Connection hose attached to the calibration cap and the GCT External Pump's gas outlet port
  - Sampling hose affixed to the GCT External Pump's gas inlet port
3. Turn on the detector and GCT External Pump.
4. Activate the bump test on the detector. (See the detector's user's manual for instructions.)
5. When the detector indicates it is time to apply gas, connect the sampling hose to the demand flow regulator on your gas cylinder as shown in **Figure 2**.
6. The bump test is successful when all the sensors have gone into alarm. If any sensor does not go into alarm within 2 minutes, then the bump test has failed.
7. Disconnect the sampling tube from the demand flow regulator. The detector will return to normal operation after a brief period.



**Figure 1:** Setup for remote sample and bump test



**Figure 2:** Bump test setup with gas cylinder connected to demand flow regulator



When a bump test fails, the detector will show: "L. BUMP FAILED." Do not use the detector unless the bump test passes. If the bump test fails, perform the following checks:

1. Check the setup for any blockage or leakage in the hose connection from the gas outlet port to the calibration cap of the detector.
2. Check for any blockage or leakage in the hose connection from the gas inlet port to the demand flow regulator.
3. Check that the GCT External Pump is not indicating abnormal operation by **red** fast flashing LEDs &/ or audible alarm beeping.
4. Check the pellet filter and hydrophobic filter. Refer to the "Filters" section on **page 9** for more information.
5. Check the detector filter for blockage.
6. Once any blockage, leak and/or filter issue has been detected and resolved, activate the pump and the detector. Then repeat the bump test.
7. If failure persists, contact the Gas Clip Technologies Service Department for further assistance.

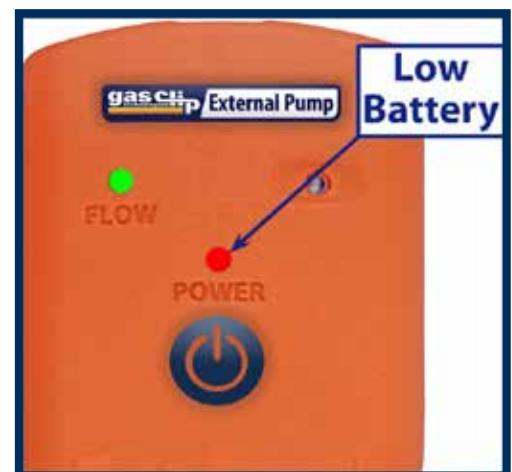
## TURNING OFF THE DEVICE

Press and hold the power button for 5 seconds until the three LED's (power, flow and charging) turn off. Then release the button.

## LOW BATTERY WARNING

Typically, 20 minutes of operation time remain when an audible alarm begins beeping every 10 seconds and the power LED starts to intermittently flash red. However, the time remaining can vary depending on the age of the batteries, the temperature of the environment and other contributing factors. Therefore, in the event of a low battery warning, exit the work area immediately since the GCT External Pump could turn off at any time.

For more power LED and beeper pattern information, refer to LED Definitions Chart.







## DEVICE MAINTENANCE

### BATTERY

To check the battery state of charge (SoC), power up the device, observe the power LED and refer to the LED Definitions on **page 4**.

To charge the GCT External Pump, connect the provided charger to the charging port, and then plug the charger into an AC outlet. When connected to a charger, the device will shut off power to the motor and turn off the flow and power LEDs. The charging LED will indicate the charge status. Once the battery is fully charged, the charging LED will blink **green** every 2 seconds.

-  DO NOT charge the device in a hazardous area.
-  DO NOT charge the device in temperatures below 32°F (0°C) or above 113°F (45°C). Charging at room temperature is recommended.
-  DO NOT substitute any other battery type unless specified and supplied by Gas Clip Technologies.
-  DO NOT use any charger other than what is supplied or offered by Gas Clip Technologies as this may damage or improperly charge the battery.

GCT recommends recharging the device whenever the power LED indicates that there is less than 40% SoC remaining this will extend the overall life of the battery.

### STORAGE

Store the GCT External Pump in a safe, cool, dry place between 32°F(0°C) and 77°F(25°C). After storage, check the power remaining in the battery and charge if necessary. Also, perform a blocked flow test before use.

If the GCT External Pump will be stored and unused for months, periodically turn it on. Charge the battery when the power LED indicates less than 40% SoC. GCT recommends checking the device every 6 months or more often.

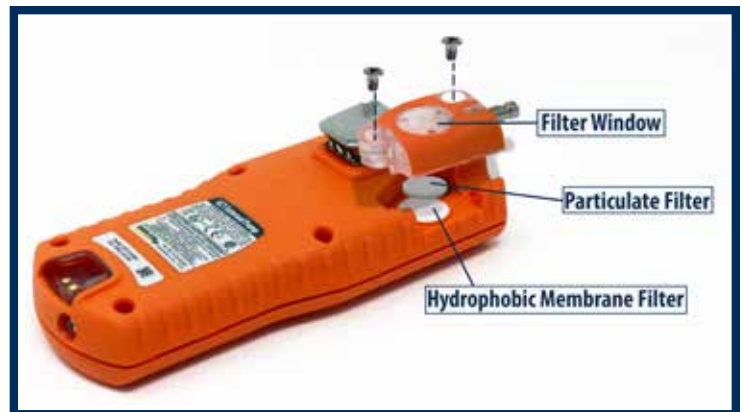
## FILTERS

A hydrophobic membrane filter and a particulate filter are located under the gas inlet. Together they provide protection against liquid and particulate ingress. It is imperative that both filters be installed properly before using the GCT External Pump in order to protect against internal damage to the device. Periodically perform visual inspections using the filter window on the back of the accessory to determine if they require replacement. Ensure the filters are clean and free of moisture and debris since clogged filters could delay sampling speed and cause the GCT External Pump to use more power thus resulting in a shorter battery run time.

If these filters become completely blocked, then the device will be unable to continue sampling and will initiate a pump blocked alarm.

To replace the filters:

1. Loosen the two screws holding the gas inlet housing in place and remove the gas inlet housing.
2. Replace the hydrophobic and/or particulate filter as required and reassemble the gas inlet.
3. Perform a blocked flow test to ensure operational readiness.  
(See **page 5** for instructions.)



## CLEANING RECOMMENDATIONS AND ROUTINE CARE

Clean the GCT External Pump case with a soft damp cloth periodically.

- ⚠ DO NOT use harsh solvents or chemicals as these products could compromise the intrinsic safety of the device.
- ⚠ DO NOT use products containing silicones or alcohols since they can interfere with or damage detector sensors.

## ACCESSORIES AND REPLACEMENT PARTS



**Particulate Filter**

replacement (Thick)

10 pack Part#: MGC-PUMP-P-FILTER-10

50 pack Part#: MGC-PUMP-P-FILTER-50



**Hydrophobic Filter**

replacement (Thin)

10 pack Part#: MGC-PUMP-H-FILTER-10

50 pack Part#: MGC-PUMP-H-FILTER-50



**6ft. Telescoping Sampling Probe**

Part# PROBE-TS



**Remote Sampling Probe-1ft.**

Part# PROBE-1



**MGC Pump Quick Disconnect**

Part# MGC-PUMP-QD



**Gas Inlet**

Part#: EXT-PUMP-GI



**MGC Vehicle Charger**

Part# MGC-CHARGER-V


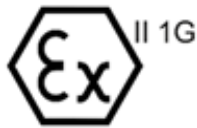



**MGC Multi Charger**

Part# MGC-CHRG-MULTI

See [www.gascliptech.com](http://www.gascliptech.com) for further details or contact GCT for pricing and availability.

## DEVICE SPECIFICATIONS

Size	6.4 x 2.8 x 1.8 in. (163 x 70 x 46 mm)
Weight	8 oz (235g)
Operational Temperature	-7.6°F to +122°F (-22 °C to +50°C)
Humidity	5% to 100% RH (non-condensing)
Battery Life	40 or more continuous hours (typically)
Charge Time	4-6 hours (typically)
Alarms	Visual, Audible (minimum 95dB)
LEDs	Flow LED--indicates that pump is on and/or blocked Power LED--indicates that the amount of battery life remaining Battery LED--indicates when the pump is charging and when it is fully charged
Tests	Full-function self-test upon activation battery and circuitry continuous
Ingress Protection	IP 68
Warranty	Full 2 years
Gas Inlet & Outlet	1/8" stainless steel barbed fitting
Sample Delay Time	Sample from up to 75 ft. (23 m) Less than 1 sec per 1 ft. (0.3 m) with 1/8" ID tubing
Approvals	<div style="display: flex; flex-direction: column; align-items: flex-start;"> <div style="display: flex; align-items: center; margin-bottom: 10px;">  <div> <p>CSA: C22.2 No. 152; CSA21CA80033769X ANSI/ISA S12.13.01 Intrinsically Safe/Sécurité Intrinsèque Class I, Division 1, Group A, B, C &amp; D T4 Class I, Zone 0, AEx ia IIC T4 Ga -20°C &lt; Ta &lt; +50°C; 4.2 Vdc</p> </div> </div> <div style="display: flex; align-items: center; margin-bottom: 10px;">  <div> <p>IECEX: CSA 21.0006X Ex ia IIC T4 Ga IEC 60079-0:2017 IEC 60079-11:2011 -20°C &lt; Ta &lt; +50°C; 4.2 Vdc</p> </div> </div> <div style="display: flex; align-items: center;">  <div> <p>ATEX: CSANe 21ATEX2143X CE 2813 II 1 G Ex ia IIC T4 Ga EN 60079-0:2018 EN 60079-11:2012 -20°C ≤ Ta ≤ +50°C; 4.2Vdc</p> </div> </div> </div>

### LIMITED WARRANTY

Gas Clip Technologies ("GCT") warrants this product to be free from defects in material and workmanship under normal use and service for a period of two years beginning upon the date of purchase. This warranty extends only to the sale of new and unused products to the original buyer. GCT's warranty obligation is limited, at GCT's option, to refund the purchase price, repair, or replacement of a defective product that is returned to a GCT authorized service center within the warranty period. In no event shall GCT's liability hereunder exceed the purchase price actually paid by the buyer for the product. This warranty does not include: (1) Fuses, disposable batteries, or routine replacement of parts due to the normal wear and tear of the product arising from use. (2) Any product which, in GCT's opinion, has been misused, altered, neglected or damaged by accident or abnormal conditions of operation, handling, or use. (3) Any damage or defects attributable to repair of the product by any person other than the authorized dealer, or installation of unapproved parts on the product. The obligations set forth in this warranty are conditional on: (1) Proper storage, installation, calibration, use, maintenance, and compliance with the user's manual instructions and any other applicable recommendations of GCT. (2) The buyer promptly notifying GCT of any defect and, if required, promptly making the product available for correction. No goods shall be returned to GCT until receipt by the buyer of instructions from GCT. (3) The right of GCT to require that the buyer provide proof 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, expressed or implied, including but not limited to any implied warranty or merchantability or fitness for a particular purpose. GCT 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 on any other theory. Some countries or states do not allow limitation of the term of an applied warranty, or exclusion or limitation of incidental or consequential damages, the limitations and exclusions of this warranty may not apply to every buyer. If any provision of this warranty is held invalid or unenforceable by a court of competent jurisdiction, such holding will not affect the validity or enforceability of any other provision.



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