

GD600A

Automated Portable
Gas Dilution Device

GD600

Gas Dilution System Quick Start Guide

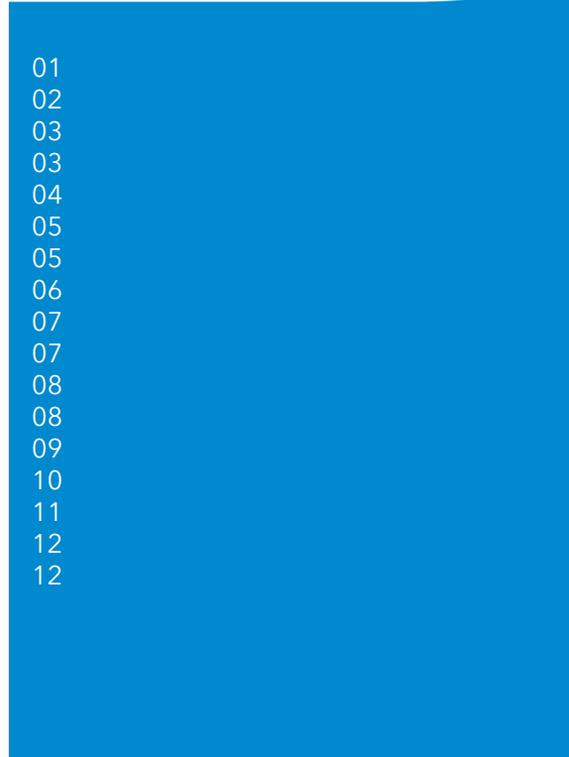
Operating and
Maintenance Manual

VERSION 1.0, JULY 2020

Thank you for purchasing the GD600!

Should you have any questions, concerns, or if you require additional support, please email us at **support@scentroid.com**

Package Contents	01
Device Description	02
Device Overview	03
Turning on the GD600	03
Connecting the GD600 to the Tablet	04
Dilution Method	05
Connecting the Calibration Gas	05
Excess Dilution Gas	06
Dilution into the Chemical Analyzer	07
Tubing	07
Charging	08
Operating Temperature and Humidity	08
Operating the GD600	09
Tablet Operation	10
Troubleshooting	11
Maintenance	12
Replacement Parts and Calibration	12



Package Contents

Check the contents of the shipment against the items listed in the packing list to ensure all components are present and undamaged. Contact support if there are any missing and/or damaged parts.



1

1x GD600
Complete Air Quality
Mobile Laboratory



2

1x GD600 Charger
A GD600 Charger with
2 separate cables



3

1x USB A-A Cable
High Speed Cable for
tablet connection



4

1x Tablet
Tablet with pre-pro-
grammed software



5

1x Tablet Charger
USB-C to outlet con-
nection

Device Description

The Scentroid GD600 Gas Dilution System provides an easy solution to simplify calibrating chemical analyzers. GD600 generates its own zero-air by scrubbing the ambient air using its 2-stage filter. Calibration gases are diluted using zero air or optionally N2 to provide a reference gas of any concentration allowing the operator to easily conduct multi-point calibration. By controlling the mass flow of the reference gas, GD600 not only simplifies the calibration process but also reduces the consumption of reference gases. Through the user-friendly android app, the user can command the GD600 to perform single or multiple point calibrations simply by entering the desired gas concentrations and time between sampling for each point.





Figure 1: Top Plate of the GD600

Device Overview

- 1:** Switch and LED
- 2:** Firmware upgrade port
- 3:** Zero air flow adjustment valve
- 4:** Ambient air inlet, used as zero background air
- 5:** Zero air inlet, used as an alternative zero background air
- 6:** Calibration gas inlet
- 7:** Output to the chemical analyzer
- 8:** Scrubber for the pump inlet
- 9:** Scrubber for the exhaust

! Turning on the GD600

Figure 1 shows a labeled image of the different parts of the GD600, to turn on the unit flip the power switch to the on position, the LED should light up green.

Connecting the GD600 to Tablet

After the GD600 has been turned on, the GD600 application (located on the home page of the tablet) can be launched. Once the app opens, a screen prompting the user to 'Connect To Bluetooth Device' will appear Figure 2. This brings up a menu where the appropriate GD600 device can be selected, the device name will match the serial number of the GD600 Figure 2. If the serial number of the GD600 does not appear the user should press the refresh button and wait for 30 seconds.

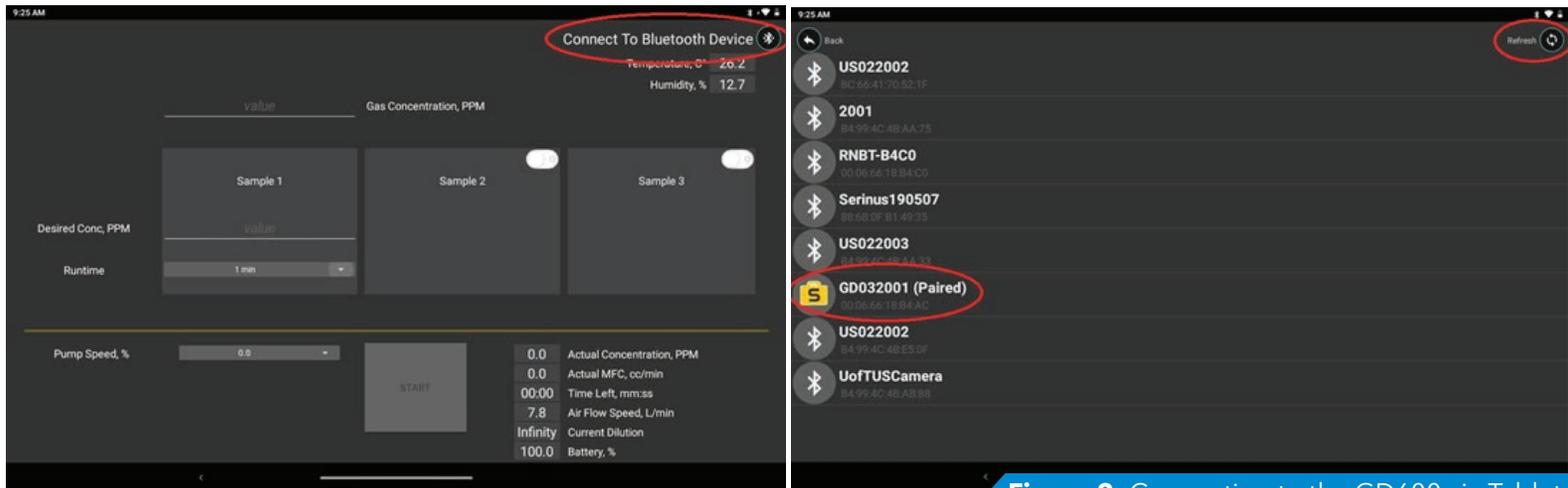


Figure 2: Connecting to the GD600 via Tablet

Dilution Method

When operating the GD600 two options are available as the dilution background air. First, the integrated pump can be used to draw ambient air. The flow rate of this can be controlled by the tablet. Alternatively the user can connect air from a compressor or an N2 (zero air) canister (the pressure of which must be less than 40psi), this flow rate will be controlled from the flow adjustment valve as shown in Figure 1.

Connecting the Calibration Gas

The calibration gas is connected to the inlet as shown in Figure 1 (CLBR GAS). Make sure the cylinder regulator on the calibration gas is opened all the way and the $\frac{1}{4}$ inch tube is inserted fully. It is also highly recommended to use PTFE tubing, to ensure no gas residue contaminates the gas. The flow rate of the regulator must be more than 600cc. It is recommended to use a regulator with flow rate of 2L/m, please note the regulator must also not be on demand.





Figure 3: Back of the GD600; Exhaust Port and Charging Port

Excess Dilution Gas

Any excess dilution gas is filtered through a scrubber then exhausted from the 'Exhaust Port' as shown in Figure 3.



Figure 4: Dilution Setup

Dilution Setup

- 1:** ¼ inch PTFE tube connected to N2 canister or compressed gas, pressure must be less than 40psi
- 2:** ¼ inch PTFE tube connected to the calibration gas, flow rate must be more than 0.6 L/m, recommended 2 L/m
- 3:** ¼ inch PTFE tube connected to the chemical analyzer, flow rate of the GD600 must be higher than the chemical analyzer
- 4:** ¼ inch PTFE tube connected to the chemical analyzer

Tubing

Figure 4 illustrates typical calibration setup using the GD600.

The zero air is connected to the 'Zero Air' fitting, the calibration gas is connected to the 'CLBR Gas' fitting and lastly the chemical analyzer is connected to the 'Output' fitting.

! Feeding Gas to a Chemical Analyzer

The desired dilution gas concentration is obtained through the output port as shown in Figure 4. It is recommended a ¼ inch PTFE tube or similar is connected to the chemical analyzer. The flow rate of the chemical analyzer must be more than that of the output of the GD600, if not the dilution calculation will be incorrect and both units can be damaged.

Charging

It is recommended the GD600 is plugged into a wall adapter in operation, this is to preserve the life of the on-board batteries. Figure 3. For in field use the GD600 will last greater than 4 hours on a single charge.

Operating Temperature / Humidity

Most chemical sensors operate in a temperature range of $-40\text{ }^{\circ}\text{C}$ to $50\text{ }^{\circ}\text{C}$ and a humidity range of 15 % to 90 % RH. To ensure the best results the GD600 should be operating within this range, an on-board temperature and humidity sensor is included, the reading is displayed on the application as shown in Figure 5.



Operating the GD600

Tablet Functions

1. Temperature of the dilution mixture in degrees Celsius.
2. Humidity of the dilution mixture in %.
3. Gas concentration of the gas canister in PPM (input by the user).
4. Desired concentration in PPM (input by the user).
5. Toggle for multi point calibration (input by the user).
6. Runtime for each calibration point (input by the user).
7. Progress bar.
8. Zero air pump speed only used if N2 gas is not used as zero air (input by the user).
9. Start and stop button (input by the user).
10. The actual output concentration by the GD600 in PPM.
11. The flow rate of the calibration gas in cc/min.
12. Time left in the current calibration process.
13. Zero air flow in L/min.
14. Current dilution rate.
15. Current battery percentage of the GD600.

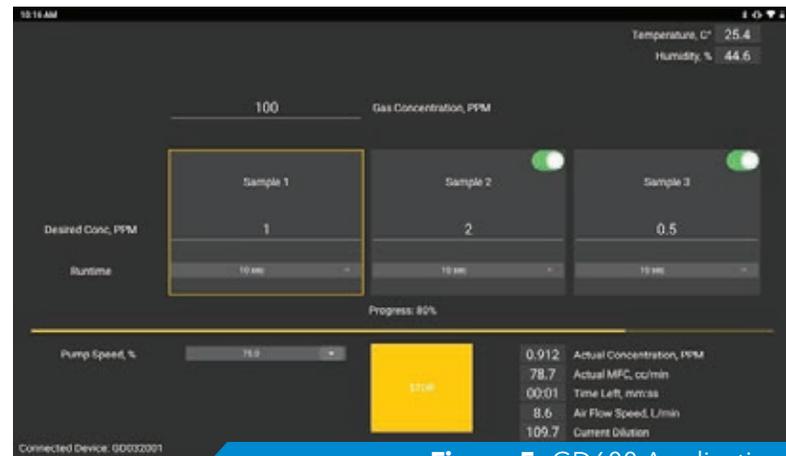


Figure 5: GD600 Application

Tablet Operation

To start the dilution the user must input the parameters indicated above in Figure 5, the pump speed must also be selected, if not using external zero air, (it is recommended to use 100% for pump speed unless using N2 where the pump speed must be zero) then press the 'start' button. The dilution will run for the specified time after which the dilution will stop, the pump speed must be set back to 0% after the dilution process. The GD600 can be used as a single point or multi point calibration device this can be toggled as shown in Figure 5. For the best results, the dilution ratio is recommended to be less than 400.

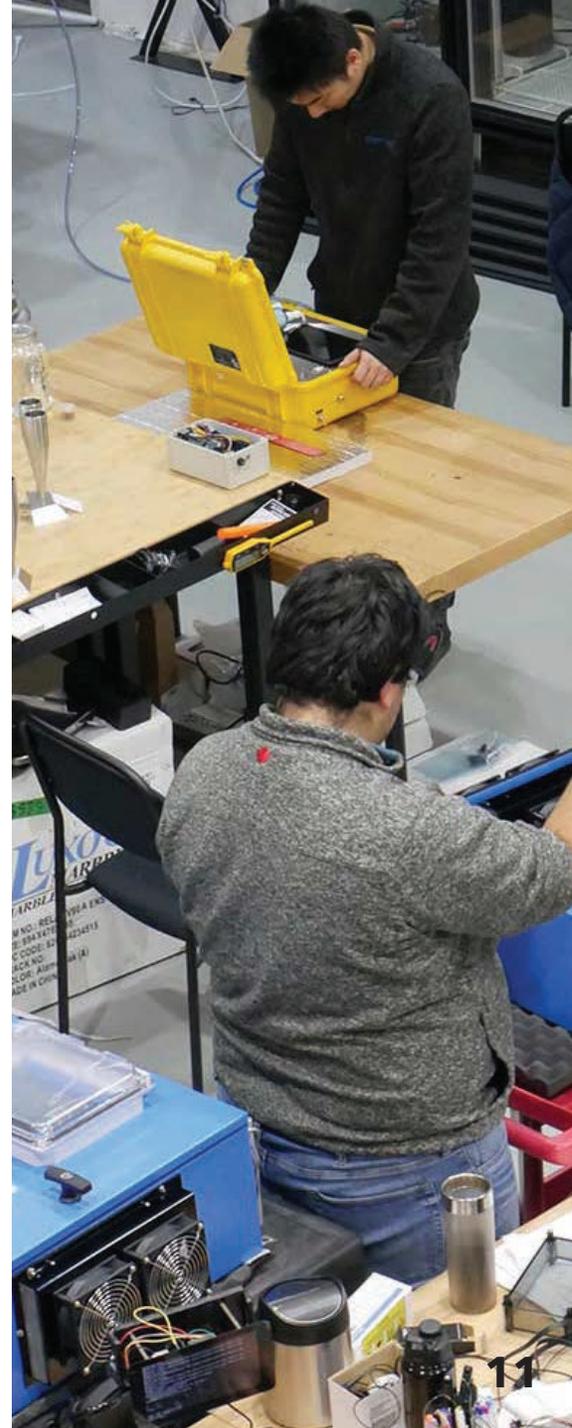


Troubleshooting

Bluetooth - If the device is not appearing on the device list restart the app, turn the GD600 on, then off and try again.

Power - If the LED doesn't illuminate, make sure the unit is charged by charging for at least 4 hours.

For all other issues please contact Scentroid support at info@scentroid.com or call us at +1 888 988 0078 or 416 479 0078



Maintenance

Replacement Parts and Calibration

The GD600 comes equipped with 2 scrubbers, one for zero air entrance and one for excess dilution gas. The zero-air scrubber should be replaced once a year, while the scrubber for the excess dilution gas should be replaced if an odor is detected from its outlet.

The mass flow controller of the GD600 needs yearly calibration and should be sent back to Scentroid for calibration.

Important

At IDES Canada Inc., we make every effort to ensure that our documentation accurately describes the operation and maintenance of our products. However, IDES Canada Inc. cannot guarantee the accuracy of printed material or accept responsibility for errors or omissions.



LET'S
BUILD OUR
NETWORK

[linkedin.com/company/
scentroid](https://www.linkedin.com/company/scentroid)



DO YOU
FOLLOW
US YET?

[@Scentroid](https://twitter.com/Scentroid)



GET THE
FULL
PICTURE

[@Scentroid](https://www.instagram.com/Scentroid)



LIKE
SHARE
COMMENT

[facebook.com/scentroid](https://www.facebook.com/scentroid)



WATCH
FOLLOW
SUBSCRIBE

[youtube.com/scentroid](https://www.youtube.com/scentroid)



SCENTROID
Future of Sensory Technology

Scentroid (Division of IDES Canada Inc.)

70 Innovator Avenue, Units #6-8 | Toronto, ON, L4A 0Y2

T: 416. 479.0078 or 1.888.988.IDES (4337)

info@scentroid.com | www.scentroid.com