

IGD WI-FI DONGLE FOR CALIBRATION, CHANNEL SETUP & OUTPUT PROVING

Operation and Maintenance

V1.0

Service & Maintenance

It is recommended that control panels and all connected detectors are commissioned upon installation and serviced every 6 months by an IGD trained technician. IGD can offer full training to enable your staff to do the servicing or offer a competitive service from our fleet of service engineers. While detectors are supplied pre-calibrated this does not obviate the need to use test gases during commissioning to prove correct operation.

Important Notes

Gas detection systems must be correctly specified, installed and maintained in order to be effective. Anyone undertaking elements of this work should have access to the necessary equipment and be able to demonstrate competence. This will usually mean having passed a training competency course. International Gas Detectors run training courses for safety survey, specification, installation and service aspects of hazardous gas detection systems. In addition IGD can supply test equipment and calibration gases necessary to undertake this work.

Please note the following points:

1. A zero grade gas usually instrument air or Nitrogen and a suitable calibration gas mixture is required.
2. The correct gas adaptors must be used to apply gases to detectors when zeroing and calibrating. Incorrect application of gases can affect calibration results
3. Use equipment and gases traceable to a national standard. Any calibration will only be as good as the equipment and materials used.
4. IGD supply fixed flow regulators for use with IGD calibration gas bottles which supplies gas at 0.5L/Min
5. Refer to 2-Wire Gas Detection Systems Installers Guide before installation.

Warning & Performance Statements

This device is NOT to be used in a classified Ex area, devices installed in an Ex area can be connected to this unit but shall be protected from one of the types of protection listed in IEC 60079-0 corresponding to their own category.

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Overview

The IGD Dongle is an engineers tool to be used for device calibrations, channel setup and prove outputs. The Dongle can be used to connect to an IGD 2-Wire device at a convenient location on the highway and service any other device on the same highway. All calibration data can also be exported as a .csv file for record keeping.

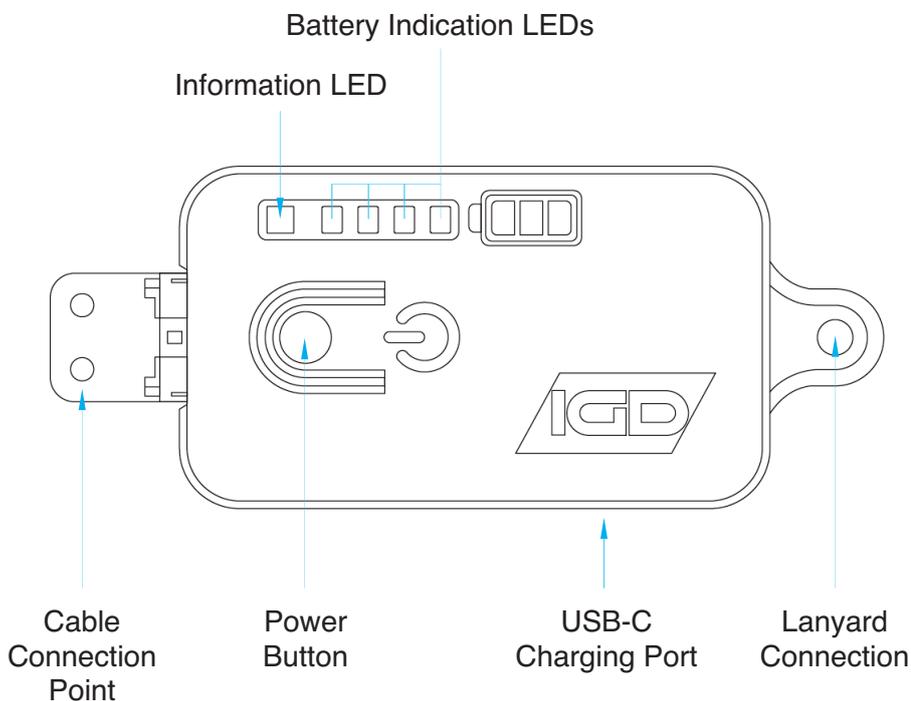
The IGD Dongle uses connection via WiFi to any WiFi enabled device (Phone, Tablet, Laptop) regardless of operating system. You can then perform setup and calibration of any IGD 2-Wire device via your web browser.

P/N
IGD-DONGLE
Replacement cable P/N
TOC-DONGLE-CBL

Specs

Port	USB-C Charging
Battery	500mAh at 3.7V
Time to charge	1 Hour
Weight	100 grams (3.5oz)
Approximate Dimensions (W x H x D)	103.93 x 42.61 x 21.50mm (4.09 x 1.68 x 0.85")

Dongle Diagram



Charging

Before using the IGD Dongle, it should be fully charged via the USB-C connector at the side. It will take approx. 1 hour to fully charge. During charging the 4 white LEDs will flash in sequence. Charging is complete when all 4 white LEDs are powered constantly.

The power button on the front of the Dongle should be quick pressed to switch the Dongle on. To put the Dongle into sleep mode, the power button should be held for 3 seconds until the information LED flashes red.

If the Dongle isn't connected to via Wi-Fi after 2 minutes it automatically goes to sleep.

LED Status

Blinking red to indicate power off, when this appears, release button and it will go into sleep mode.



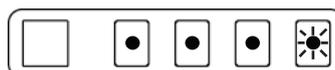
The green LED blinks periodically to indicate the Dongle is powered on.



The green LED is also used to indicate communication to the connected device, typically flashing rapidly.



White LEDs are for battery status. They animate to show charging when USB-C is plugged in.



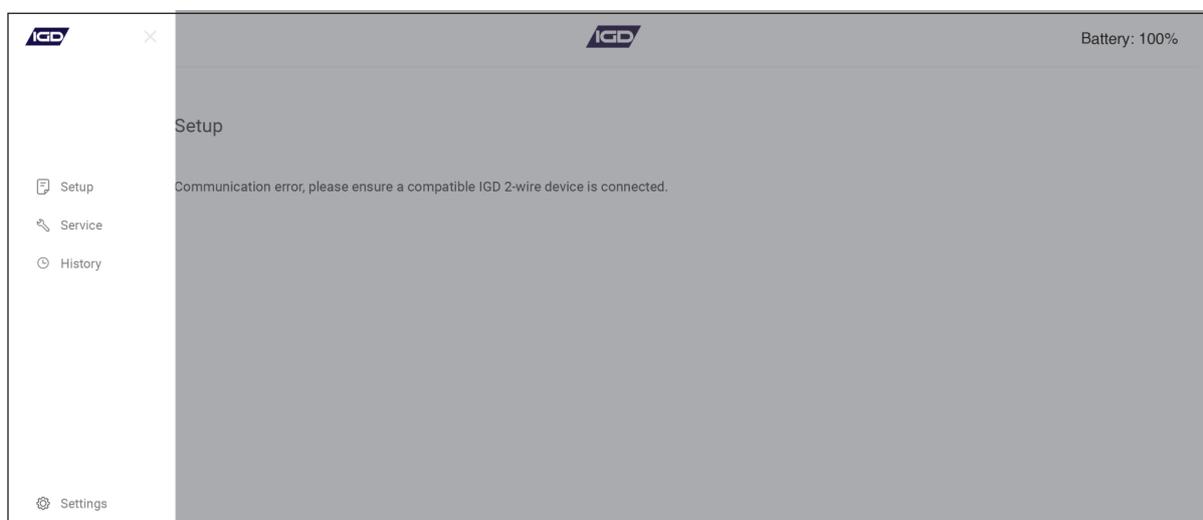
Connecting to Dongle Wi-Fi

To connect to the Dongle Wi-Fi to begin using, you will need to:

1. Ensure the Dongle is charged and powered on.
2. Select IGD_DONGLE_XXXXX from the list of available networks in your WiFi settings
3. Wait long enough for the connection to be made & the WiFi symbol to show on your device.
Enter password igd999000
4. In your web browsers navigation bar, enter 192.168.4.1

Note: Turning off mobile data will stop your device from trying to re-connect to the internet whilst accessing the IGD Dongle web pages. You can also lose connection to the dongle if there are other Wi-Fi networks in the area that you have “auto-join” enabled.

5. Once connected to the Dongle you can view the battery level. From the menu ①, you can choose to set up a 2-wire device, service a 2-wire device, export calibration data from the history menu, or view the Dongle settings.



Note: When connecting to a 2-wire device on a cable highway, the control panel must be placed in INHIBIT mode. Failure to do so may result in system errors.

Settings Menu



The software upgrade option is used to update the software on the IGD Dongle. As new features are released you may be required to update the IGD Dongle. If this is required IGD will provide the required software and a set of instructions to update the dongle software. Updates can be performed via the web browser interface; no additional tools are required.

Firmware Update

The Firmware Update option can be used to update the software on an IGD 2-wire device.

Renew Licence Key

All IGD Dongles are restricted by a licence key. When the licence expires, or soon before, you must contact IGD for a renewed licence key & provide your Dongle serial number. The key can be sent as a software file via email. When receiving the file, you can upload to the Dongle using this menu option.

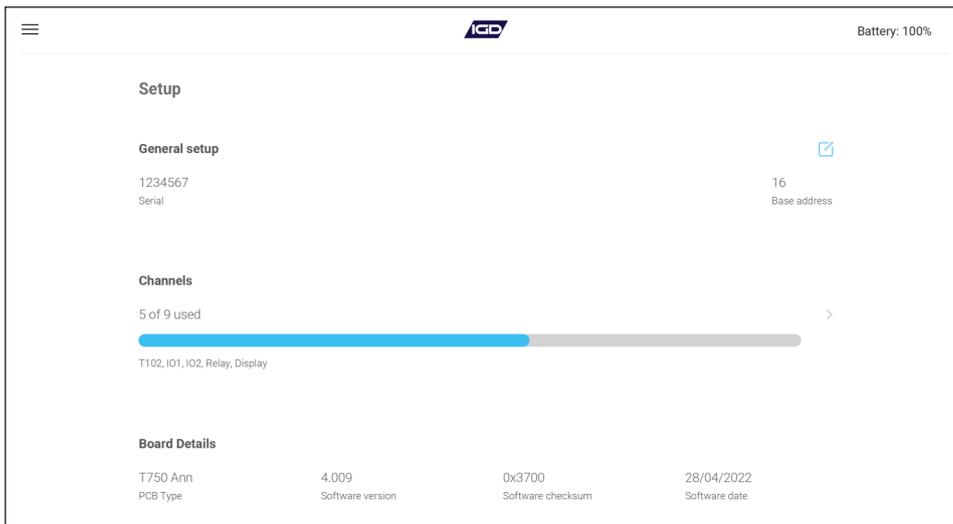
This will ensure the Dongle remains fully functional. If the licence is left to expire, the Dongle will be locked and will no longer be able to be used to calibrate or configure 2-wire devices.

About

In the About option details of the dongle can be viewed such as software version, licence expiry date.

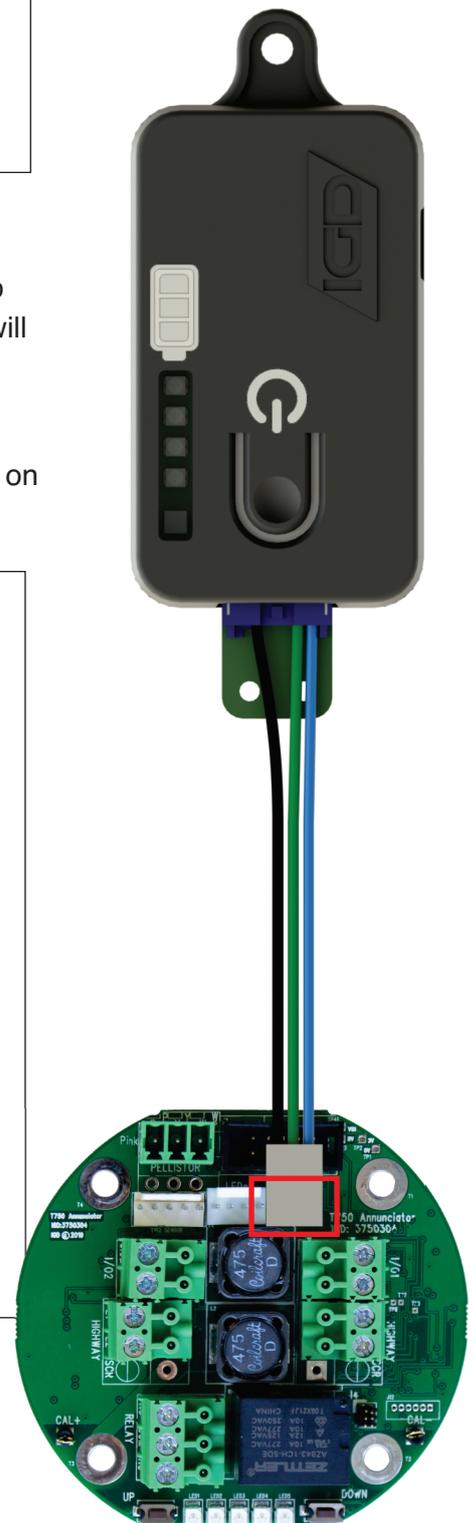
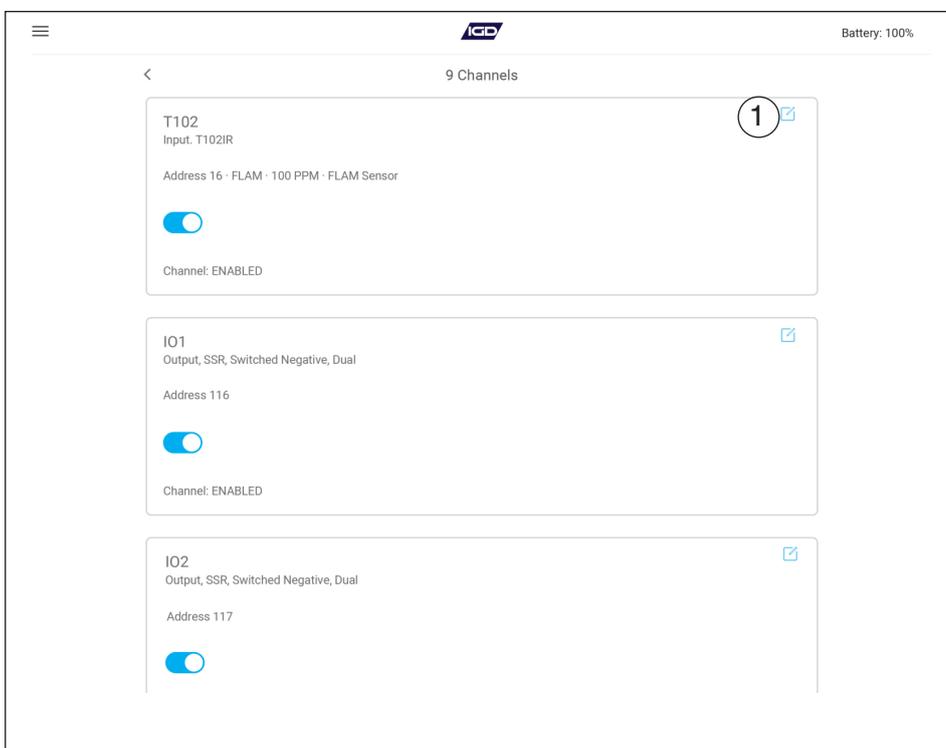


Configuring a 2-Wire Device



In the Setup menu, you can configure a 2-wire device. In General Setup you can edit the base address of the device. Editing the base address will automatically re-address all inputs and outputs enabled on the 2-wire device to follow the set sequence from the new base address.

In the Channels option you can edit ① which inputs & outputs are used on the 2-wire device.



You may wish to edit the tag line on a T102 port

<T102

Address

Type *

Gas *

Range *

Units * (excluding digital inputs)

Tag

Or change the function of an I/O port

<I01

Please select one

- Input, 4-20mA, 24V
- Input, 4-20mA, 0V
- Input, Voltage, 0V
- Input, Digital, 0V
- Input, Pulse, 0V
- Input, Digital, 24V
- Input, 4-20mA, 24V, No Under Range
- Input, 4-20mA, 0V, No Under Range
- Output, SSR, Switched Positive
- Output, SSR, Switched Negative
- Output, SSR, Switched Negative, Dual

Tag

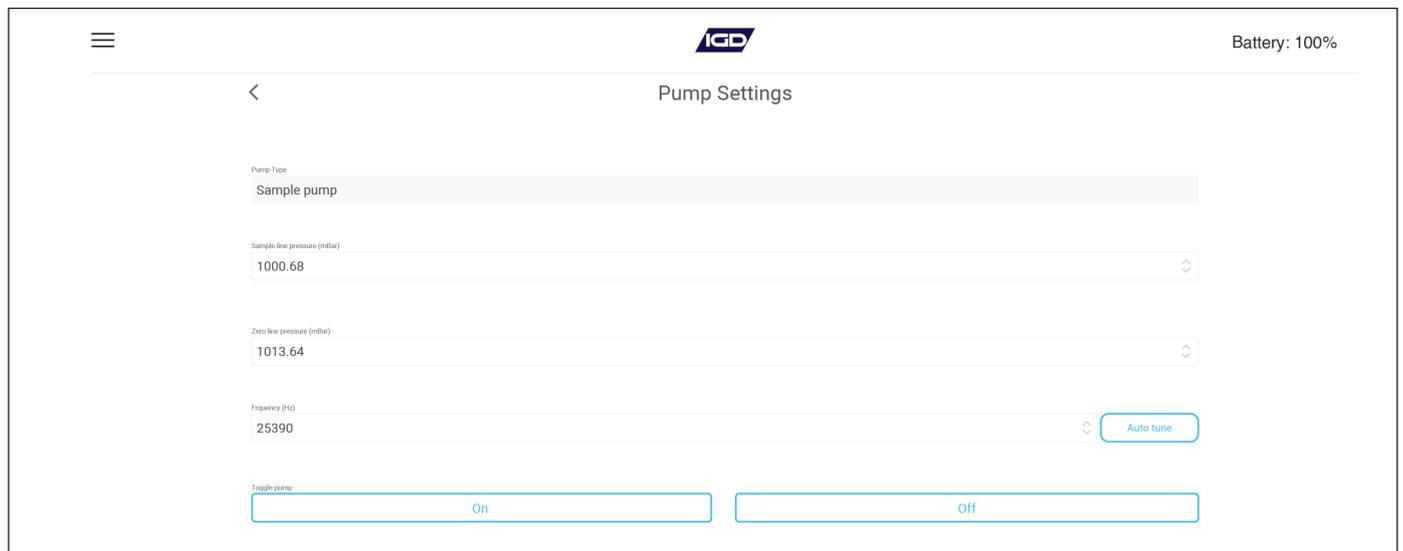
After any changes are made, click apply to save the changes to the 2-wire device.

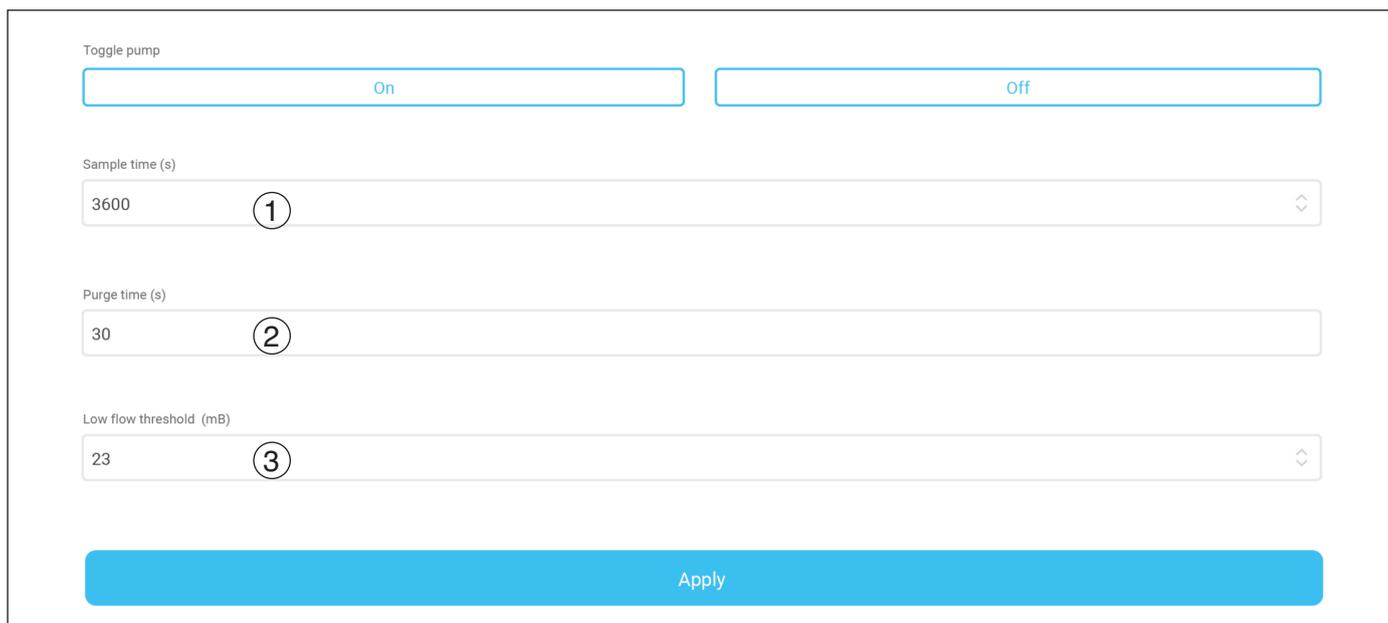
Samplers can also be configured in the setup menu. If servicing a TOC-750S sampler with the Dongle please ensure it is on software version 2.206 or newer.

If connected to a TOC-750S sampler, pump settings & sampler settings options will be displayed in the setup menu.



In Pump settings, you can tune the pump and edit thresholds for pump pressure, sample time & purge time as required.





Toggle pump

On Off

Sample time (s)

3600 ①

Purge time (s)

30 ②

Low flow threshold (mB)

23 ③

Apply

① Sample Time(s)

If enabled, how many seconds to sample before performing automatic zero or cal. After this time, the sampler also stores a new value for pump-off pressure, used when detecting low-flow.

② Purge Time(s)

If Protect concentration is reached (default 75% of range), the Sample pump is turned off and the zero pump is turned on, the zero pump's 'Sample Time Seconds'. The Sample pump then purges for this time before sampling resumes

③ Low Flow Threshold (mB)

The allowed difference between pump off pressure and current pump on pressure before a low flow fault is generated.

In the sampler settings option, you can enable/disable the auto Zero or Cal option. This will zero the sensor after the sample time using the zero port inlet on the sampler. The cal option can be used for Oxygen samplers. Protect concentration option can also be enabled/disabled here.

For full details of sampler settings please see the TOC-750S manual.

Service Menu

Service

► **Select New Base Address**

4 Sensors/Relays

Input T102, Protocol 2

Address 16 · FLAM · 101 %LEL · FLAM Sensor



Output, SSR, Switched Negative, Dual

Address 116 · SSR · 100



Output, SSR, Switched Negative, Dual

Address 117 · SSR · 100



Output, Relay

Address 118 · RLY · 100



The active inputs/outputs on the 2-wire device you are connected to will be shown in the service menu. Here you can select outputs & function them on/off for testing purposes.



Output, Relay, T750 Ann

Address

118

Type

Output, Relay

Manufacturer

0

Manufacturer ID

0

Relay state

De-energised

Tag

Toggle relay state

If you select an input you will be able to view the sensor information.

The screenshot shows the IGD mobile app interface for a sensor. At the top, there is a battery status of 100%. The main title is "Input, T102A, T750 Ann". Below the title, there are four sensor readings: 10.953 PPM, 1.676 Volts, 22.688 Cable Volts, and 02/10/2023 Last Service. Below these readings are several configuration fields: Address (6), Range (100), Units (PPM), Type (Input, T102A), Manufacturer (0), Manufacturer ID (0), Gas (CO), and Tag (CO Sensor). At the bottom, there are three buttons: "Skip Zero?", "Download Sensor Details", and a blue circle with a white plus sign and the number 1. Below the buttons are two expandable sections: "Service data" and "Sensor details".

To begin a sensor calibration, select the blue circle “plus” button ① at the bottom right on the screen. You will then be prompted to enter or select a site & engineer ID. This is the condition that will group the data to your export file e.g. if you wanted a data file for sensors on each highway, you will have to enter a site ID for each highway. You will need to select the site ID before each calibration so the data can be grouped correctly in the export file.

When you have highlighted a Site ID/ Engineer ② press the arrow ③ to continue.

The screenshot shows a list of Site ID/ Engineer combinations. The list contains four items: Site ID: 363 Engineer: 1, Site ID: 2 Engineer: 25, Site ID: 3 Engineer: 3, and Site ID: 3 Engineer: 12. The fourth item is highlighted with a blue border and a circled 2. Below the list is a blue button with the text "+Add new". At the bottom right, there is a blue circle with a white arrow and the number 3.

Next, you will need to enter your Zero gas bottle, select it ① & press the arrow to continue.

Apply zero gas

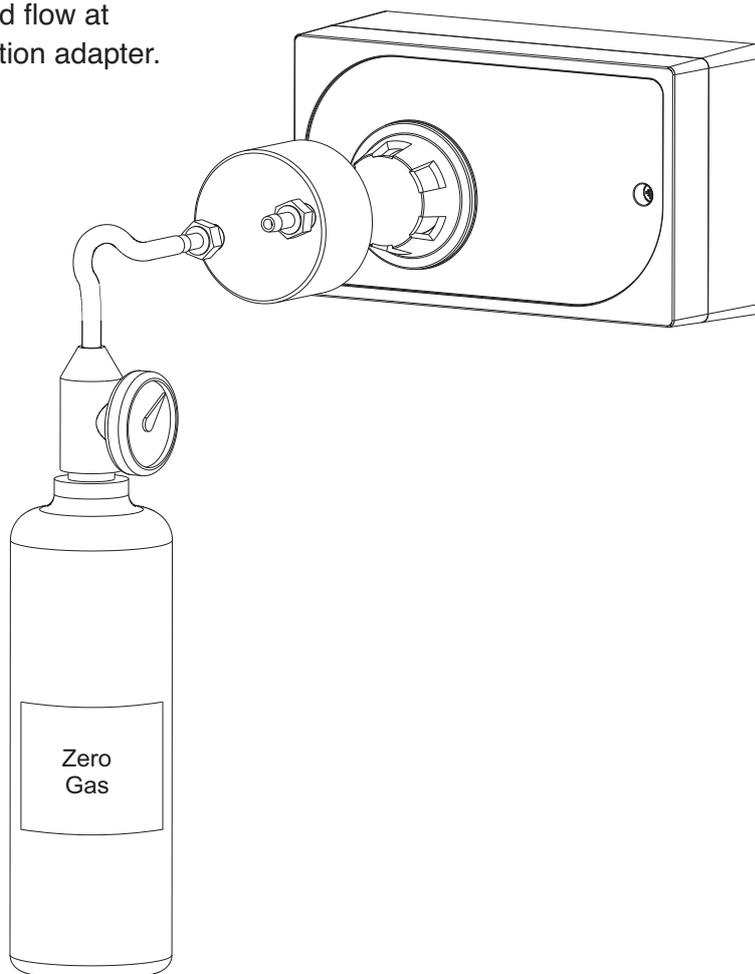
Select zero gas and ensure gas is connected and flowing, continue when ready.

Air
100 % Bottle + ①

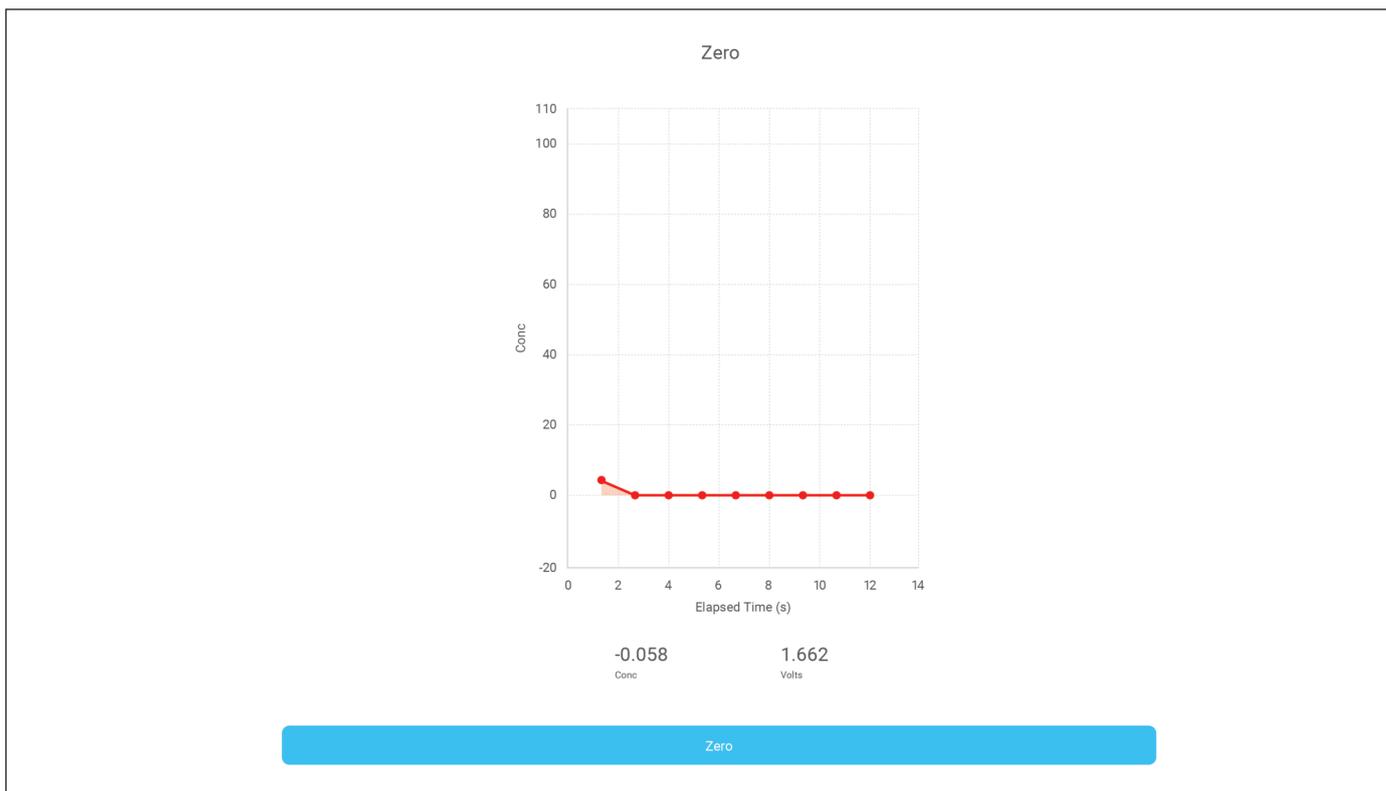
N2
100 %VOL bottle +

+Add new

You should connect your zero gas and flow at 0.5LPM using the correct IGD calibration adapter.



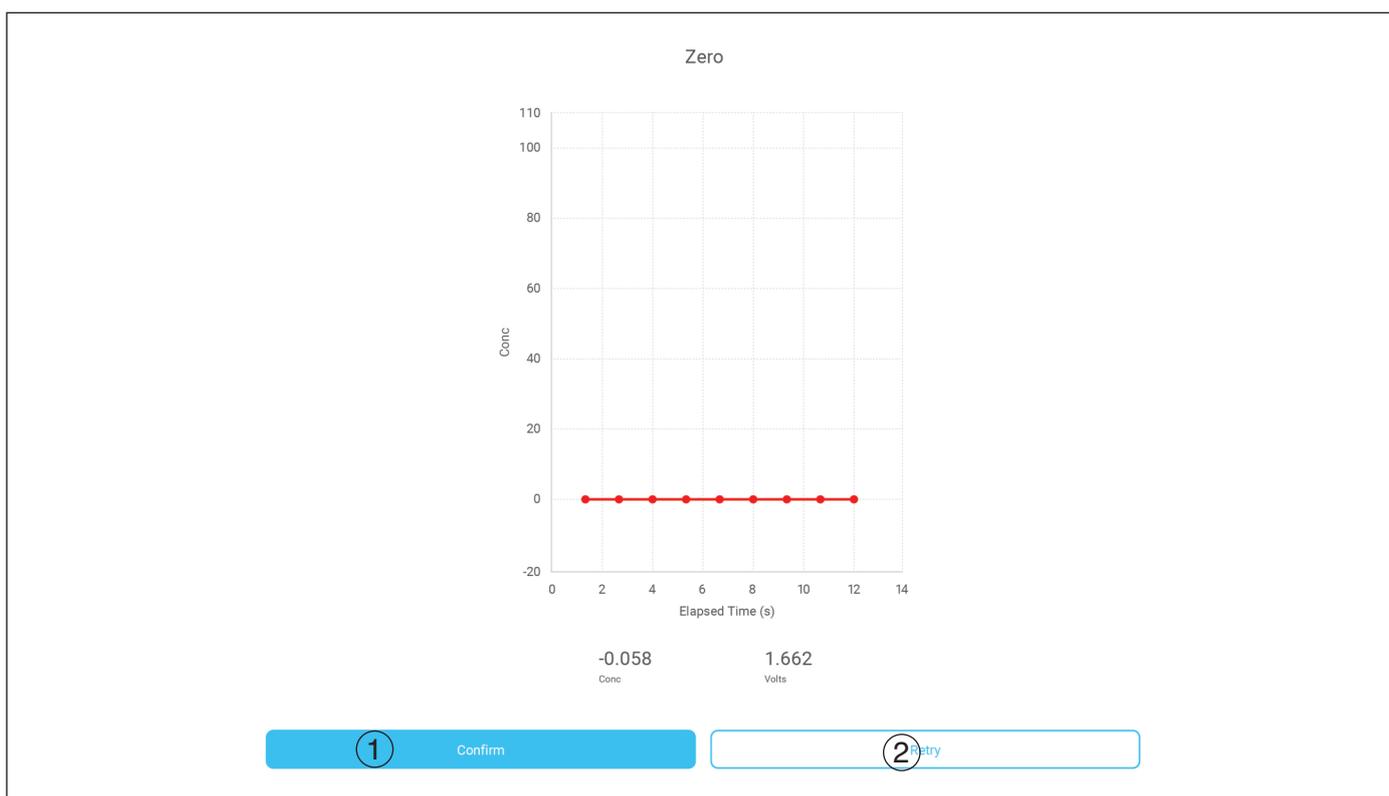
The Dongle will check the stability of the zero. When the graph turns green, press “Zero” to perform a sensor zero.



After the sensor has been zeroed. The Zero will be checked. Keep the zero-gas flowing.

Wait until the graph turns green, then press the confirm button ①.

If the sensor is not stable at zero, you can leave the zero gas on and press retry ② to repeat the zero.

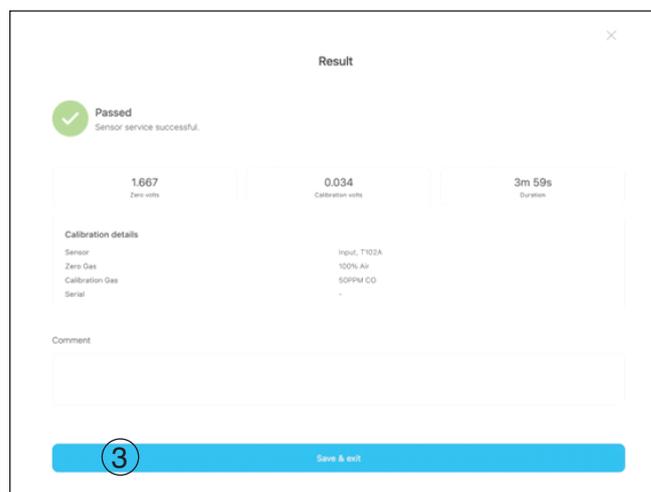
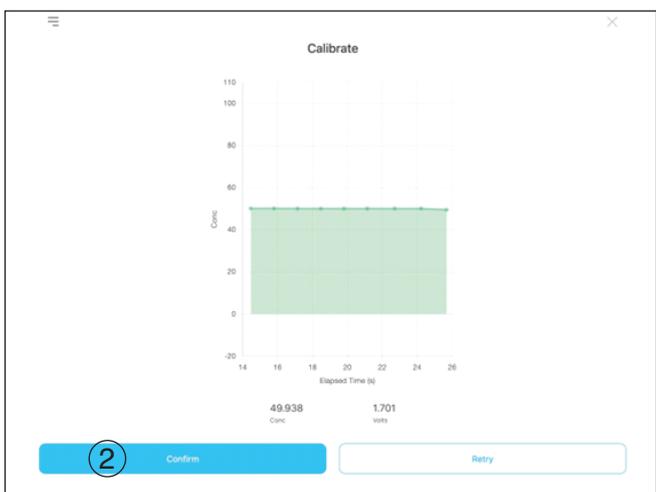
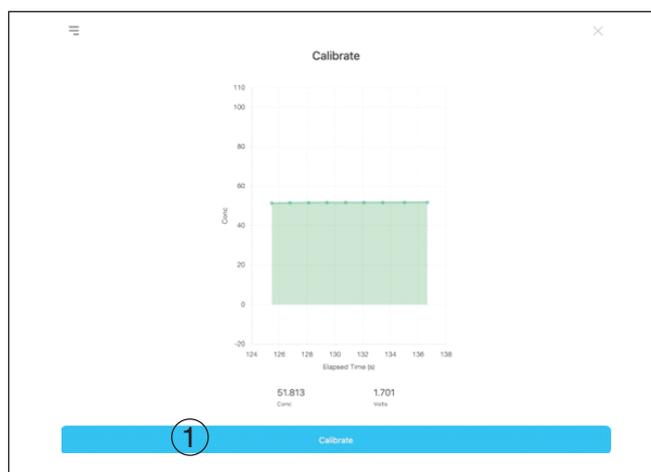
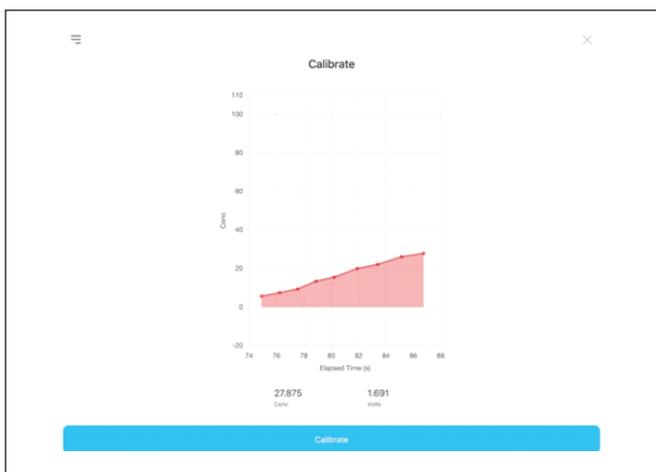


After the zero is complete you will be prompted to enter & select your calibration gas details. You should then apply the appropriate calibration gas to the sensor and continue to the next screen.

You will now need to wait until the gas reading is stable and the graph turns green when you are ready, press calibrate (1). This will adjust the concentration to the previously entered "bottle value".

After the reading is stable, press confirm (2) to finish the calibration. You will then be shown the calibration result, you can enter a comment if you wish. Any comments are saved to the data file.

Press save and exit (3) to complete the calibration & save the sensor data.



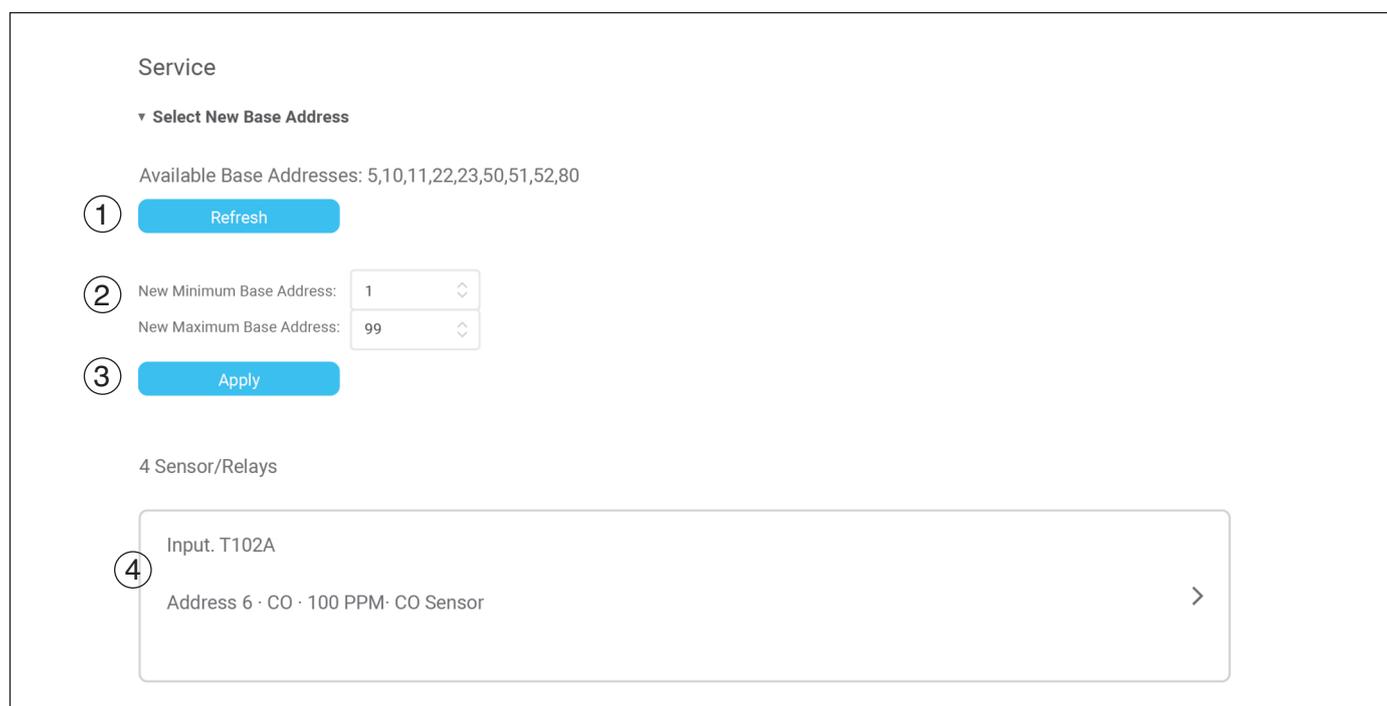
Communicating Along a Highway

One great feature of the IGD Dongle is that you can calibrate, test and check sensors along a cable highway. You do not have to be connected to the device you are calibrating. This makes testing & calibrating much quicker as not every device must be plugged into.

This feature can also be used for devices which are hard to access.

With the control panel in inhibit mode, connect to any IGD 2-wire device with the Dongle. In your web browser select the service menu option. Click on Select new base address.

You can press the refresh button ① next to “Available Base Addresses” to view which addresses are used on the highway you are working on.



The screenshot shows a web interface with the following elements:

- Service** header
- Select New Base Address** dropdown menu
- Available Base Addresses:** 5,10,11,22,23,50,51,52,80
- ① Refresh** button
- ②** New Minimum Base Address: 1 (dropdown)
- ②** New Maximum Base Address: 99 (dropdown)
- ③ Apply** button
- 4 Sensor/Relays** section
- ④** Input. T102A (clickable)
- Address 6 · CO · 100 PPM · CO Sensor (text below the input)
- > (arrow icon)

If you wish to calibrate a group of these sensors, first edit the address range (New minimum base address & new maximum base address ②), then press Apply ③.

You will now see the inputs/outputs on the device you are connected to & the inputs of the devices in the selected address range.

You can click on an input to view information for that sensor & begin a zero/calibration ④.

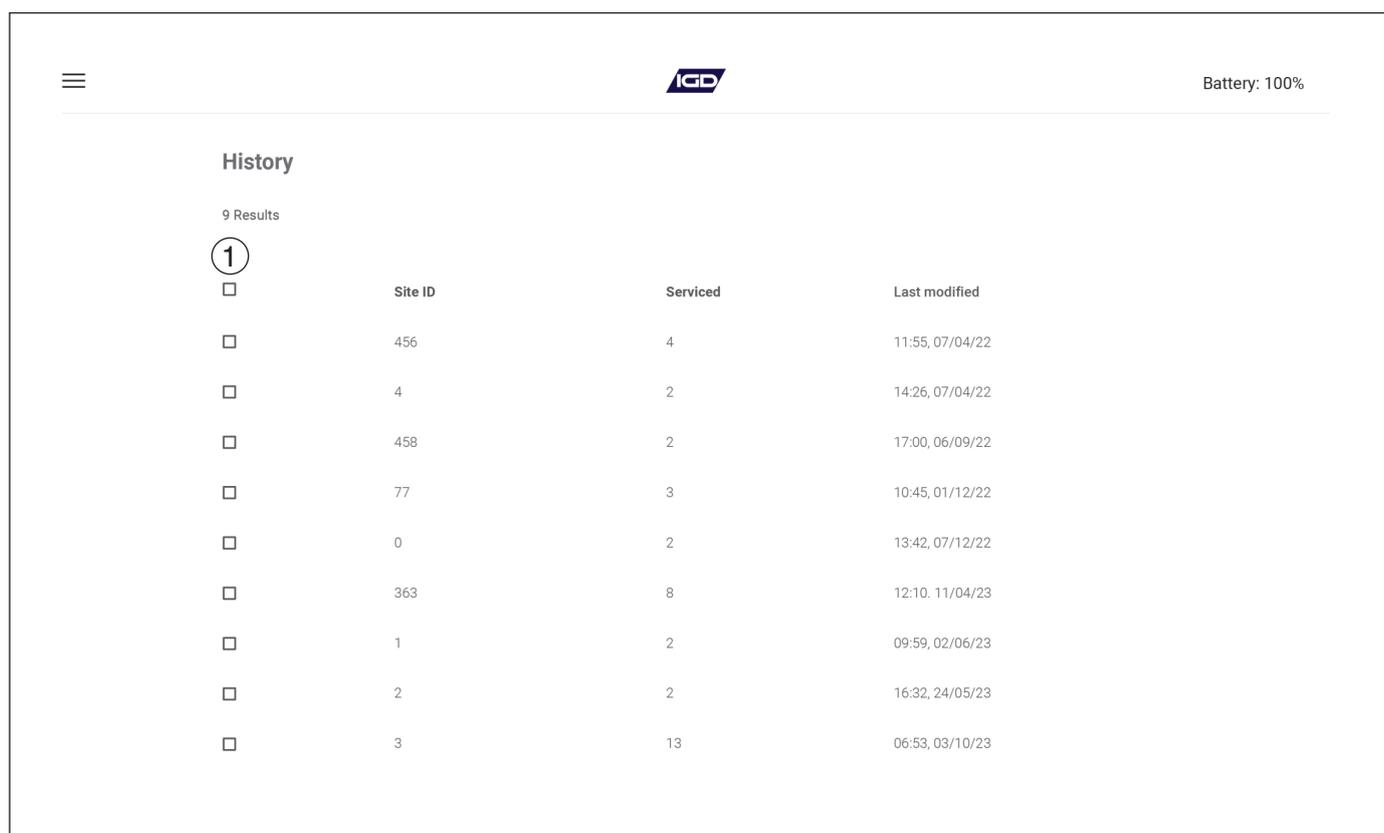
Saving & Exporting Data

When calibrations are complete, and you are ready to export the data you will need to go to the history option in the menu.

Here you will see a list of results. All data is grouped by Site ID so it is important to select the correct Site ID when calibrating a sensor so the data is grouped as you require.

To export the data, tick the box **1** for the group of data you need. Then press the blue button at the bottom right of the screen. The data will now be exported as a .CSV file to your downloads file.

Once saved the data can be sent as an email attachment or similar for client records.



The screenshot shows the IGD application interface. At the top left is a menu icon (three horizontal lines). In the center is the IGD logo. At the top right, it says "Battery: 100%". Below the header is a section titled "History" with "9 Results" listed below it. A circled "1" is next to the first checkbox in the table. The table has four columns: "Site ID", "Serviced", and "Last modified".

<input type="checkbox"/>	Site ID	Serviced	Last modified
<input type="checkbox"/>	456	4	11:55, 07/04/22
<input type="checkbox"/>	4	2	14:26, 07/04/22
<input type="checkbox"/>	458	2	17:00, 06/09/22
<input type="checkbox"/>	77	3	10:45, 01/12/22
<input type="checkbox"/>	0	2	13:42, 07/12/22
<input type="checkbox"/>	363	8	12:10, 11/04/23
<input type="checkbox"/>	1	2	09:59, 02/06/23
<input type="checkbox"/>	2	2	16:32, 24/05/23
<input type="checkbox"/>	3	13	06:53, 03/10/23