

# GC-IMS-ODOR



## Quickstart Guide



**G.A.S. Gesellschaft für  
analytische Sensorsysteme mbH**

## **GC-IMS-ODOR - Quickstart Guide**

**Version 1.4.1, April 2021**

**Valid for GC-IMS-ODOR Firmware- Version 4.0 and higher**

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CE-Marking according to:

**International Standard EN ISO 17050-1:2004**

**European Union Low Voltage Directive 2006/95/EC**

**European Union Electromagnetic Compatibility Directive 2004/108/EC**

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**Please have the serial-number of the instrument at hand**

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# 1 General Information

## 1.1 Information about the Manual

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### INFORMATION!

This **Quickstart User Manual** is an extract of the most important information for installation and initial setup from the User Manual. It is an **addition to the User Manual** and does not replace the User Manual.

This manual describes a safe and adequate handling of the device. Following the instructions of the indicated safety aspects and instructions as well as the national and/or local rules and general safety regulations concerning the prevention of accidents are absolutely imperative.

Before starting the work with the device read the manual completely and thoroughly particularly the chapter security and respective safety references. Assure that you/the operator comprehend the terms described.

The manual is part of the device. It must be stored together with and next to the device at any time.



### INFORMATION!

The graphics in this user manual are schematic and may differ from the actual conditions. The firmware and PC software screenshots in this user manual may differ from the actual conditions.

## 1.2 Explanation of Symbols

---

Important and safety-relevant references in this manual are characterized by symbols. These indications which are in-line with industrial safety must be respected and followed at any time.



### INFORMATION

This symbol calls information, which are to be considered for efficient and perfect handling of the equipment.



### WARNING

This symbol indicates references, which can lead to damages, malfunctioning and/or loss of the device.



### DANGER

This symbol marks references, which can lead to health impairments, injuries, lasting body damages or to death due to electric current.



### DANGER

This Symbol marks paragraphs, which describe potential dangers and damage due to exposure to radioactive radiation.

## 1.3 Notation for dialogs, elements and references

---

Example Dialog:

**System** > **Connections** > **LAN File Transfer** > **Settings...** > **Test Connection**

Example Elements:

Gas Out, Sample gas in

Example: References

Advanced User Manual, Chapter 5.1 Installation Requirements

Example: Information

keep the transport box

## 1.4 Scope of Supply

---

Assure that you have received the full scope of supply. If there is any part missing, please contact the GAS-hotline immediately.

### Standard Scope of Supply



GC-IMS-Odor Device (1 piece)



Power supply (1 piece)



GC-IMS Gas tube Kit

- Driftgas/Carriergas (1 piece)
- 2 m 3mm PFA Tubes with 3 mm Swagelok-Connector (6 Pieces)
- Bypass Adapter (1 piece)



Molecular sieve 200 ml with 1/8" connections (1 piece)



LAN Cable (1 piece)



GC-IMS Blind plug Set (5 pieces)

(Swagelok 3mm Blind plug with red cap installed on device connectors)





### Torx Tool Kit

- Torx Screwdriver 8 mm (1 piece)
- Torx Screwdriver 10 mm (1 piece)



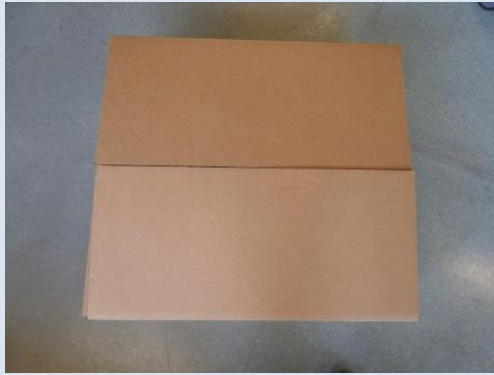
### I/O Connector (1 piece)



### Document Map with Documents and Device User Manuals



### USB-Stick Box with Software und Documents (1 piece)

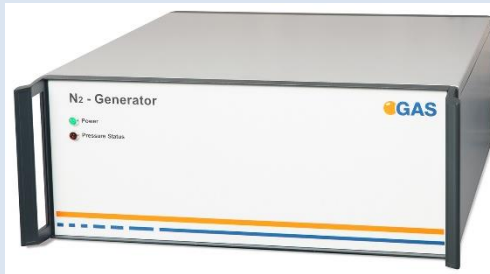


Transport box (1 piece)



GC-IMS Transport palett (60 x 80 cm)

### Optional Scope of Supply (only available if ordered)



Nitrogen Generator with accessories  
(example picture)

## 1.5 Liability and Guarantee

---

This user manual describes the safe and proper handling of the device.

All data and reference within this manual are compiled under the valid regulations, the state-of-the-art as well as G.A.S. experiences of several years.

This user manual must be stored together with and close to the device at any time and accessible to all persons, who operate or handle the device at any time.

This user manual must be read carefully before starting to work with the device. G.A.S. does not assume any liability for damage and disturbances, resulting from disregard of the instructions contained in this user manual. All claims of any kind related to damage from a not intended use of the device will be rejected.

G.A.S. reserves the right to realize technical changes of the product due to improvements without explicitly mentioning them.

## 1.6 Copyright

---

The manual is confidential. It is beyond doubt exclusively made and also meant for the personnel directly dealing with the equipment. All data, texts, designs, pictures and other representations within this manual are protected in the sense of the copyright law and are subject to further commercial patent rights. Each abusive is punishable by law.

Passing it on to third persons as well as duplications in any kind and form - also in part - as well as the use and/or report of contents are not permitted without written agreement of the manufacturer. Offences lead to payment of damages. We reserve ourselves all rights of the practice of commercial patent rights.

## 1.7 Return and Disposal

---

For an adequate disposal, the device or/and its equipment must be returned to the G.A.S. or to a third party authorized by the G.A.S.! For questions please contact G.A.S.

## 1.8 Software Updates

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If there are any software updates customers will be contacted by G.A.S. Gesellschaft für analytische Sensorsysteme mbH as soon as the updates are available. The updates are free of charge within the first 12 month after delivery. Users will be provided with information about the changes and instructions for executing the updates.

## 1.9 Customer Service

---

For questions concerning G.A.S. products a customer service is available:

G.A.S. Gesellschaft für analytische Sensorsysteme mbH  
Otto-Hahn-Straße 15  
44227 Dortmund  
Germany  
Phone: +49 (0) 231 / 97 42 - 65 50  
Fax: +49 (0) 231 / 97 42 - 65 55  
[support@gas-dortmund.de](mailto:support@gas-dortmund.de)

The telephone hotline is available from monday to friday from 9:00 to 16:00 hours. In urgent cases or if you use fax or email please provide a telephone number for callbacks.

# 2 Safety

## 2.1 Intended Use Only

---



### WARNING!

Usage other than described in this manual may damage the device and/or harm persons involved.

Do not use the device for other purposes. Damages due to misuse are not covered by the guarantee. Such damage claims will be rejected.

The device and its equipment are not certified for the employment in areas with explosive gas air mixtures.

All claims or requirements of any kind against the manufacturer and/or its authorized persons that arise due to damages from a not intended use of the device will be rejected. All damages that arise from a not intended use are of the operator's responsibility.

The intended use of the equipment and its correct handling according are described in the operating instructions of this manual. Other parts than the parts belonging to the scope of supply, may only be used after G.A.S. approval.

## **2.2 Responsibility of Operator**

---

The device may only be operated in a perfect technical condition. Before putting the device into operation the condition of the device and its equipment must be checked. The information and instructions provided in this manual have to be followed at any time.

Besides the instructions provided in this manual the local rules for the prevention of accidents, general safety regulations - valid for the area of application of the device - as well as the valid environmental-protection regulations must be considered and respected.

The responsible technicians and operators have to make sure a failure-free use of the device. Responsibilities among the involved persons regarding installation, operation, maintenance and cleaning must be made clear.

### **2.2.1 Requirements of Personnel**

---

Only authorized and trained technical personnel may work with the instruments. The operator must have received an instruction over existing and all possible dangers and should be regularly instructed in safety procedures and environmental protection and that the personnel is fully aware of the complete operating instructions and particularly the safety notes. Personnel that might be under the influence of drugs or alcohol are to be kept off the device at any time.

Technical personnel in this context are defined as skilled employees who are knowledgeable due to their educational background. In case the foreseen personnel do not have the necessary qualifications to operate the instrument, it must be trained. Further to that non-authorized personnel should not operate the device.

The competencies for the work on and with the device must be specified and kept undoubtedly at any time so that with respect to security issues no unclear situation might come up.

Any changes of the equipment, which impair security of the personnel, must immediately be reported to the operator and every person dealing with it.

## 2.2.2 Dangers

---

The device and its equipment is subject to an endangerment analysis. The construction and execution of the device corresponds to the today's state-of-the-art. The device is reliable in service when operated according to its intended use.



### INFORMATION!

If the housing of the device is damaged, the device must not be used anymore and must be returned to the G.A.S. by using the original transportation case.



### DANGER

The GC-IMS device contains a radioactive radiation Tritium source of 75 MBq which in all EURATOM countries is below the exemption limit. However, do not open the device! Do not try to recover malfunctions of the device! Malfunction recovery, repairs and any maintenance work may only be performed by G.A.S. or by qualified personnel authorized by G.A.S.



### DANGER

The GC-IMS and its equipment is not certified for the employment in areas with explosive gas air mixtures (Zone 0).



### DANGER

Exercise great care in handling current-carrying parts like the power supply cord. Do not get directly in touch with current-carrying parts. Do not open the housing. Do not use damaged parts.



### DANGER

When Nitrogen is used as drift gas and helium as carrier gas, ignition of a helium plasma may occur due to the high voltage present in conjunction with a radiation source. This can damage the IMS.

# 3 Transport, Packing and Storage

## 3.1 Inspection after Transport

---

Check the supply immediately after delivery concerning its completeness and/or transport damages. If you detect externally visible transport damage, do not receive the supply, or only under reservation. State the extent of the damage on the provided delivery note and/or the transportation documents of the feeder. Generate a complaint. Lodge a complaint of covered defect immediately after recognizing, as claims due to transport damages can only be made valid within the complaint periods (usually 7 days).

## 3.2 Packing

---

If no return agreement regarding the packing was agreed upon dispose the packaging material always in an environmentally friendly way and according to valid local regulations. If necessary, ask a recycling company.



### INFORMATION!

It is recommended to **keep the transport box** for a safety return transport.



### 3.3 Storage and Transport

---

Store the device only under the following conditions:

- **When not in use store the equipment in the supplied casing**
- **Prevent unauthorized access**
- **Do not store outside**
- **Protect the equipment from moisture and dust**
- **Put protective caps on all gas sockets**
- **Avoid mechanical vibrations**
- **Do not expose the equipment to aggressive substances**
- **Protect the equipment from direct sun light**
- **Storage temperature: 5 to 40 °C**
- **Relative Air Humidity: 0- 90%Rh, non condensing**
- **Instrument's position: Horizontal**

The equipment should be moved only within the provided carrying case. By this means, transport damages can be avoided. The above mentioned values are considered for an instrument transported in its original new packing.



#### **WARNING!**

Protective caps should be put on gas sockets in case the device is stored or transported.

# 4 Cleaning and Maintenance

Natural aging and the wear of certain components of the equipment require a regular cleaning and maintenance.

## 4.1 Cleaning

---

Clean the device only with a dry or easily damp cloth.



### WARNING!

Do not use cleaning agents, which contain solvents, acids or bases.

### 4.1.1 Maintenance

---



### INFORMATION!

Maintenance of the device should only be carried out at G.A.S. or through specially trained and by G.A.S. authorized personnel.

The recommended **maintenance interval is 12 months.**

# 5 Installation GC-IMS Device

## 5.1 Installation Requirements

---

The following requirements must be fulfilled by the customer:

### Location of Installation

- Available space of 600 x 700 x 300 mm (W x D x H)
- Ambient temperature of 5 - 40 °C
- Humidity: 0-90 % RH, non-condensating

### Electricity

- Electricity supply free of interferences
- Power Supply of 230 V  $\pm$  10%, 50- 60 Hz  $\pm$  1%

### Gas supply

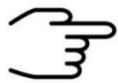
- Nitrogen (Quality 5.0 (99,999%) or Synthetic Air (Quality 5.0 (99,999%))
- Stainless steel pressure reducer adjustable adjustable pressure range of 3 - 6 bar and 3 mm Swagelok connector

### Safety

- Availability of exhaust system for device exhaust gas tubes (Gas out and Sample Gas out)

### Computer

- Computer with current Microsoft Windows operating system
- Administrator right to install G.A.S. software



#### INFORMATION!

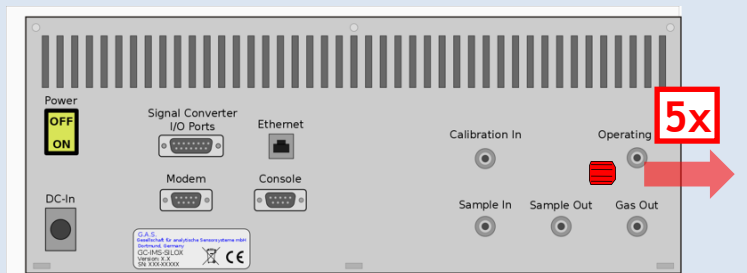
To ensure correct measurements it is absolutely necessary to **connect the supplied exhaust tubes** (Gas out and Sample gas out).

The exhaust tubes (Gas out and Sample gas out) **must be led separately into the exhaust system and must not be connected.**

The exhaust system must **not generate any negative pressure.**

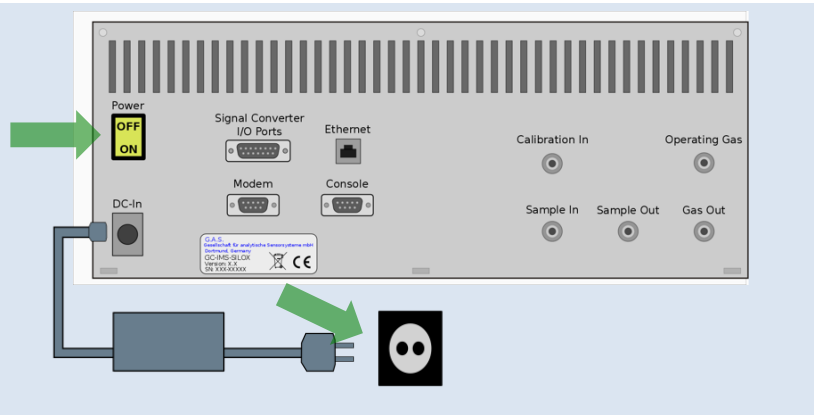
## 5.2 Set-up of the GC-IMS-Odor Instrument

1



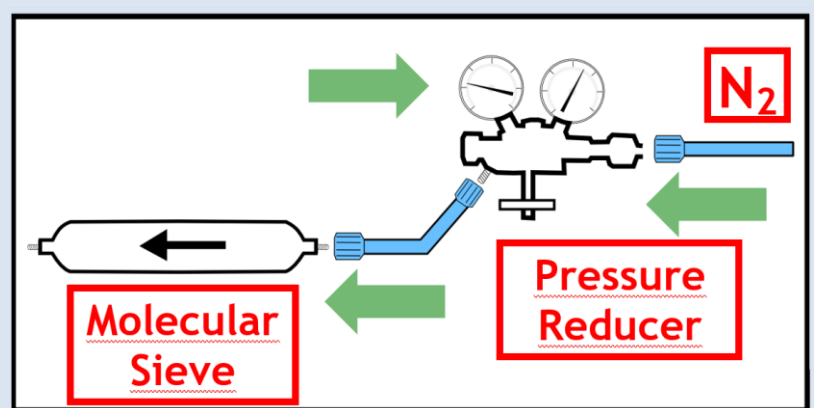
Remove the red protective caps from the gas-connection sockets

2



Connect the power-supply - Check before that the Power-Switch is turned off.

3

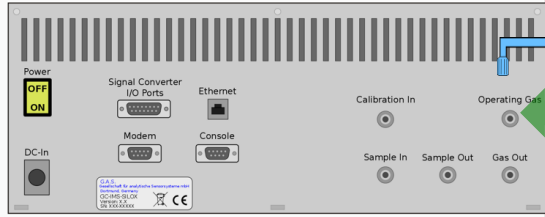


Connect the Nitrogen Supply (Gas-Quality 5.0 or higher) to the Molecular sieve supplied



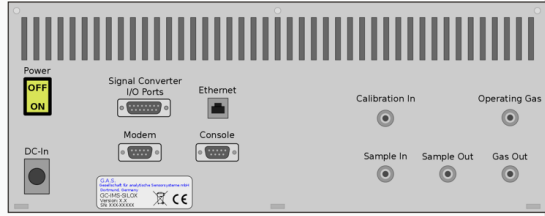
Adjust the Pressure reducer to supply **Operating GAS** with a pressure between 3 and 5 bar

4



Connect the outlet of the molecular sieve to the **Operating Gas**.

5

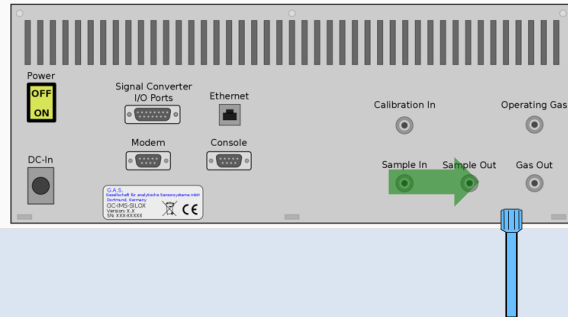


Connect the gas outlets **Sample Out** and **Gas Out** separately to a suitable Exhaust, avoid any aspiration (gas-sucking) from the gas-outlets of GC-IMS-Odor instrument.



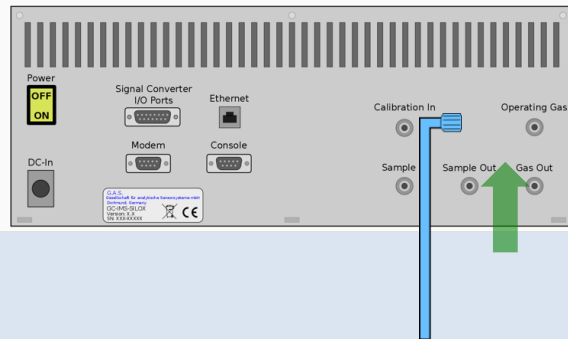
**Testgas In** and **Samplegas In** pressure Range: from 20 mbar to max 3 bar

6



Connect the gas-source (from grid) to the **Samplegas In**.

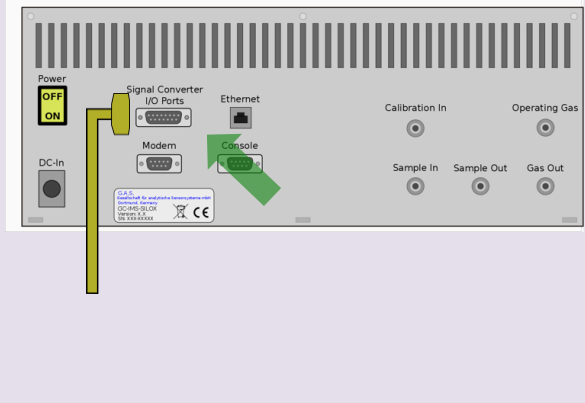
7



Connect the certified Testgas (Calibration-Gas) to the **Calibration In**.

10

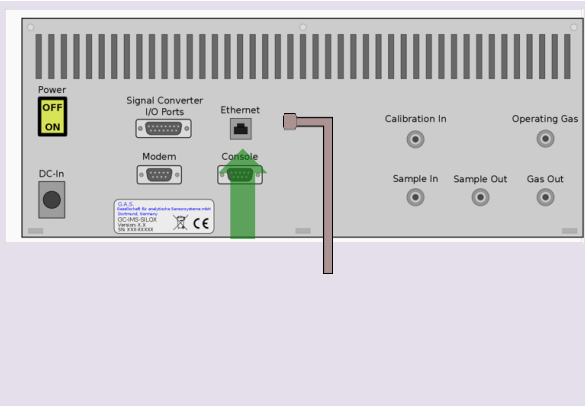
Option



For Output of Result-Values via the Current-Loop (0-20-mA Current-Loop) connect the Current-Loop cable to the socket **Signal Converter - I/O Ports**. View more detailed information in the User-Manual

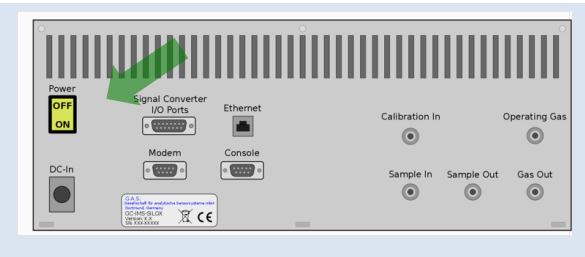
11

Option



Measurement files and Result Reports can be transferred to a Server via LAN. Connect the **Ethernet LAN Cable** to the RJ45 Socket and to the LAN. View more detailed information in the User-Manual

8



Set Power ON.

## 5.3 Workflow Cleaning

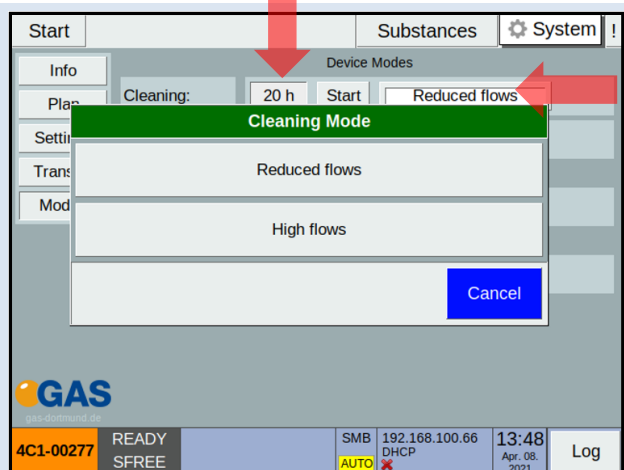
1



Typical View of the Start Page after successful set-up and power-up of the instrument. The instrument would be ready, the key instrument default parameters have almost reached their setpoints (see red arrows)

Contamination is seen (red circle), the instrument needs cleaning. Ideally do a Cleaning over night

2



Open:

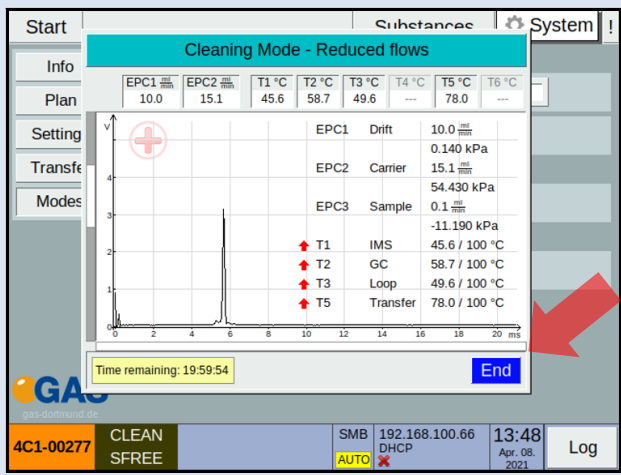
**System** > **Modes** > **Cleaning Mode**

Chose between **High Flows** or **Reduced Flows**

It is recommended to use high flows because the Cleaning is more efficient. Chose Reduced Flows if Nitrogen saving is necessary. Select the **Cleaning duration** Click Start to start the Cleaning cycle



3

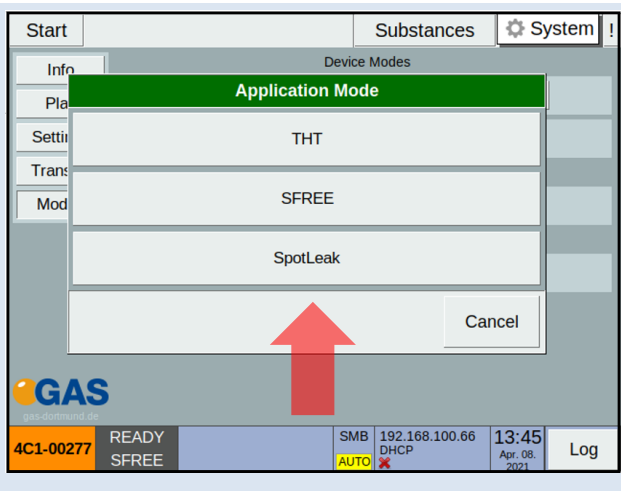


During the Cleaning Cycle the Cleaning Mode Page is shown. The instrument parameters can be observed. All Temperatures are heated to 100°C. To cancel the Cleaning Mode Press **End**. The **Time remaining** is indicated

Note that after the Cleaning it will take 2 h to cool down to Default Temperatures

## 5.4 Workflow Selecting the Application Mode

1

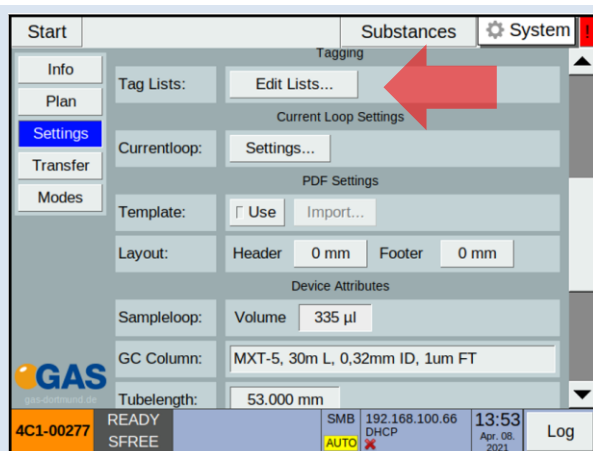


Open **System** > **Modes** > **Application Mode**  
 Select the desired Application **THT**, **S-Free** or **SpotLeak**

## 5.5 Workflow: Define Tag Lists (optional)

It is possible to define Tags which will be added to the measurement files and to the results report. This is optional, if no tags are needed the operator can skip this section

1

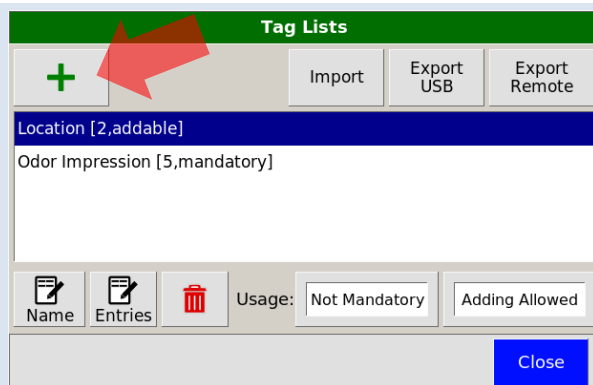


Open the Settings Page:

**System** > **Settings** > **Tagging**  
> **Edit Lists...**

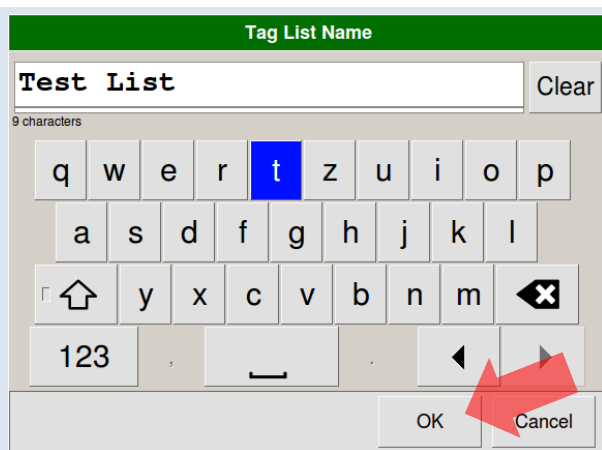
Use the **Scrollbar** to scroll down to the **Tag Lists**

2



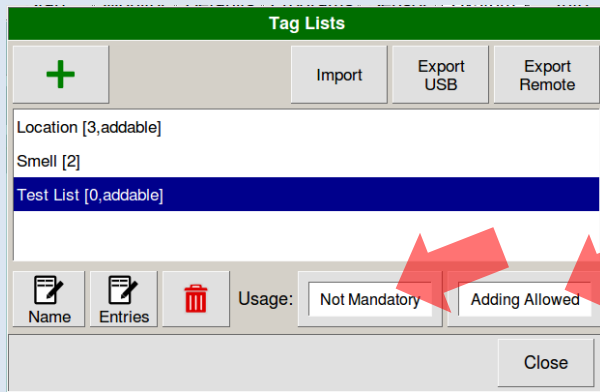
Use the Tag Lists Management Window to define or edit the Tag Lists:  
Add a new Tag List by **+**

3



Enter the Tag List Name and close the Dialog with **OK**.

4



Set the Properties of the Tag Lists.

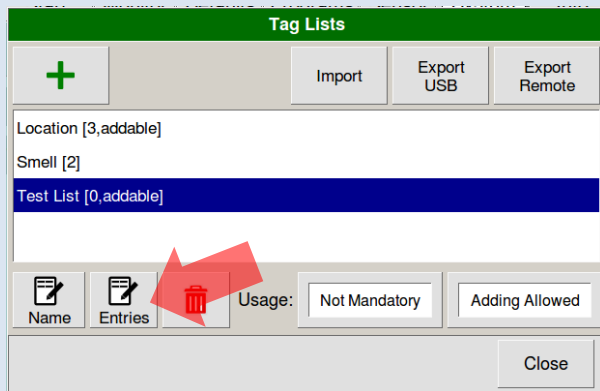
Example:

Make a Tag a requirement: -

**Mandatory**

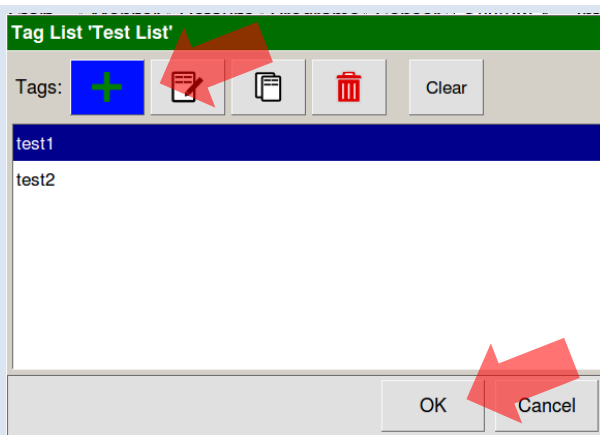
Allow a manual addition to a Tag - **Adding Allowed**

5



Open a Tag List for editing the Entries **Edit Entries**.

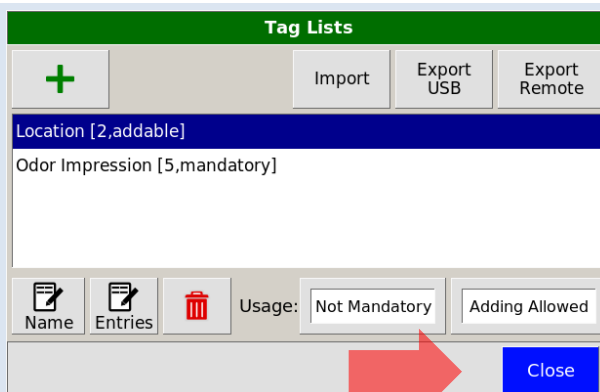
6



Add Tags using **+**

Close the Dialogue Box with **OK**.

7



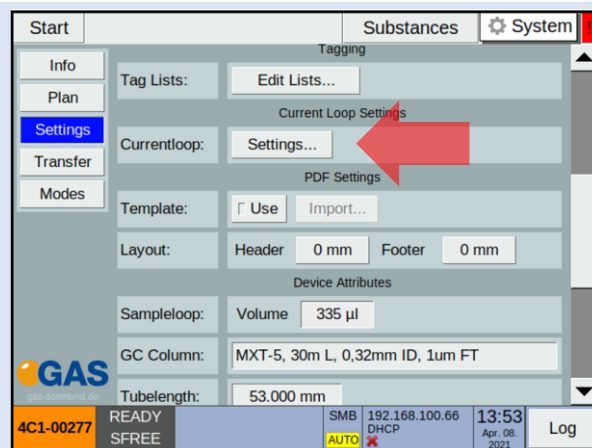
Close the Tag List Management Window with **Close**.

## 5.6 Workflow: Set the Output of the Current Loop (optional)



To get an Output Signal representing the measured concentration generated by the 0-20mA-Current-Loop it is necessary to connect a suitable cable to the **Signal Converter - I/O Ports** found at the backside of the GC-IMS-Odor Instrument as well as to the chosen Signal Display. Please consult the GC-IMS-Odour User Manual for more information.

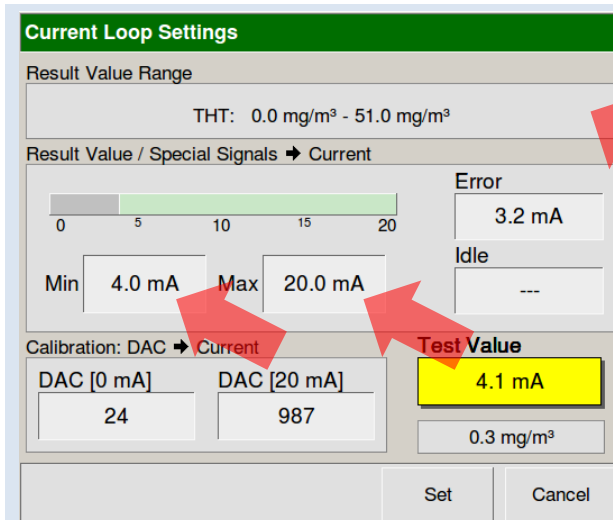
1



Open the Current Loop Settings Dialogue Box

**System** > **Settings** > **Current Loop** > **Settings...**

2



Use the Value Entry Fields of **Result Value / Special Signals -> Current** >

To set **Min** and **Max** of the projection of the concentration range onto the current output range (0 mA to 20 mA)

Example-Settings:

0 mg/m<sup>3</sup> → 4 mA

51 mg/m<sup>3</sup> → 20 mA

3

**Current Loop Settings**

Result Value Range  
THT: 0.0 mg/m<sup>3</sup> - 51.0 mg/m<sup>3</sup>

Result Value / Special Signals → Current

0 5 10 15 20

Min 4.0 mA Max 20.0 mA

Error 3.2 mA

Idle ---

Calibration: DAC → Current

DAC [0 mA] 24 DAC [20 mA] 987

Test Value 4.1 mA

0.3 mg/m<sup>3</sup>

Set Cancel

Use the Value Entry Fields of **Calibration: DAC ->Current** to set **DAC [0 mA]** and **DAC [20 mA]** which allows calibrating the Currentloop with the Display Unit.

5

**Current Loop Settings**

Result Value Range  
THT: 0.0 mg/m<sup>3</sup> - 51.0 mg/m<sup>3</sup>

Result Value / Special Signals → Current

0 5 10 15 20

Min 4.0 mA Max 20.0 mA

Error 3.2 mA

Idle ---

Calibration: DAC → Current

DAC [0 mA] 24 DAC [20 mA] 987

Test Value 4.1 mA

0.3 mg/m<sup>3</sup>

Set Cancel

In addition it is possible to Define a mA Value which reports an Error as well as to define the Current output during the idle state of the instrument. In **Result Value / Special Signals -> Current** set the Values for **Error** and **Idle**

6

**Current Loop Settings**

Result Value Range  
THT: 0.0 mg/m<sup>3</sup> - 51.0 mg/m<sup>3</sup>

Result Value / Special Signals → Current

0 5 10 15 20

Min 4.0 mA Max 20.0 mA

Error 3.2 mA

Idle ---

Calibration: DAC → Current

DAC [0 mA] 24 DAC [20 mA] 987

Test Value 4.1 mA

0.3 mg/m<sup>3</sup>

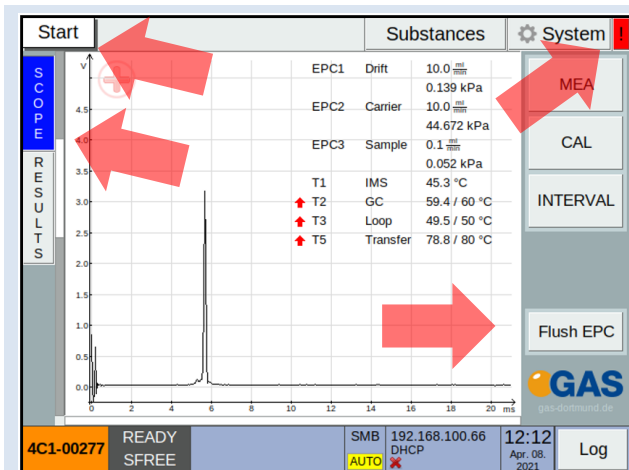
Set Cancel

Apply the new Settings which were entered in the Current Loop Settings Dialogue by clicking **Set**

# 6 Running the instrument

## 6.1 Preparations for Measuring

1



Select **Start** > **SCOPE** to view the status of the instrument

Inspect the Quality of the RIP  
In case of contamination perform the instrument Cleaning (see Workflow Cleaning 5.3)

Check for pending Errors **!**

by opening the **Error Page**

Consider to **Flush EPC** to passivate all sampling surfaces

2

The screenshot shows the error log page. At the top, there is a table with columns for 'Start date', 'End date', 'Reporter', and 'Error'. Below the table, there are navigation arrows. At the bottom, there is a status bar with '4C1-00277', 'STARTUP', 'SFREE', and 'SMB 192.168.100.122 DHCP'. A red arrow points to the 'Start' button in the top left.

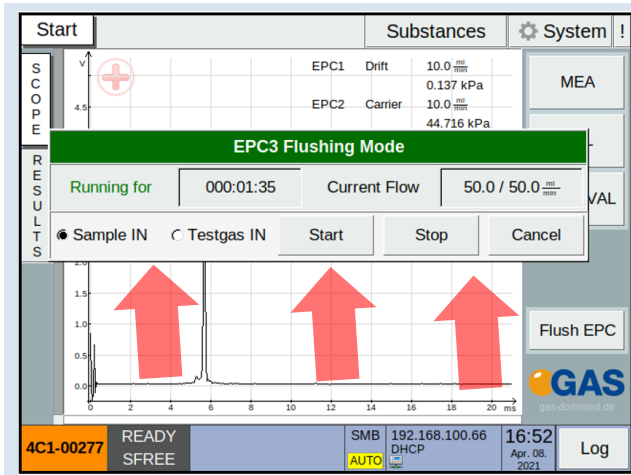
Start date	End date	Reporter	Error
2021-04-08 09:45:58	Pending	Temperature controller	T1 high
2021-04-08 09:46:06	Pending	Temperature controller	T2 high
2021-04-08 09:46:10	Pending	Temperature controller	T3 low

By clicking the **!** the error page opens in the Default view reporting current Errors.

Typically after Cleaning Temperatures are too high or during Start-up the instrument needs to heat to reach Temperature setpoints

Click **Start** to continue

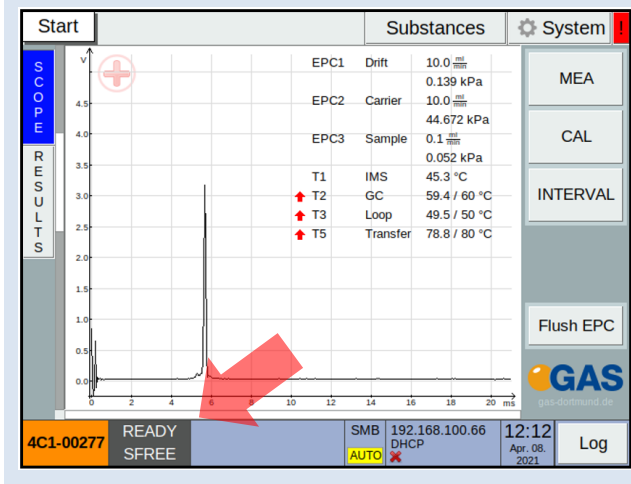
3



It is possible to Flush the sampling lines including the sample loop to ensure that surface passivation is done. Select either the **Sample IN** line or the **Testgas IN** Line and **Start** The **EPC3 Flushing Mode**. It is also possible to **Stop** or **Cancel** the **EPC3 Flushing Mode**.

Consult the GC-IMS-Odor User Manual for more insights

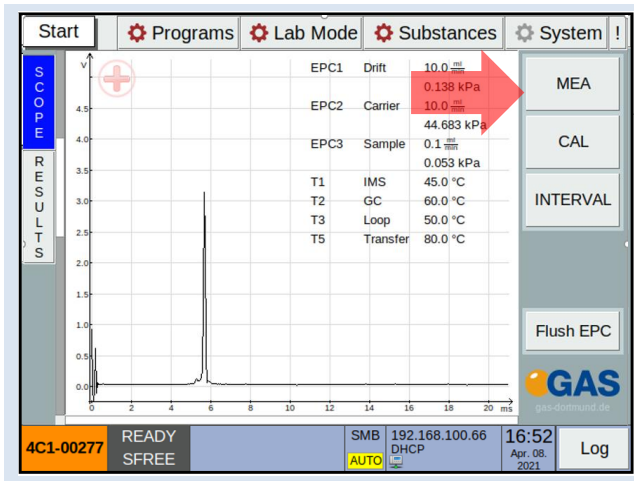
4



Check in the **Status Bar** if the desired **Application** is selected and if the System is **Ready** for measuring.

## 6.2 Workflow: Run a Manual Measurement

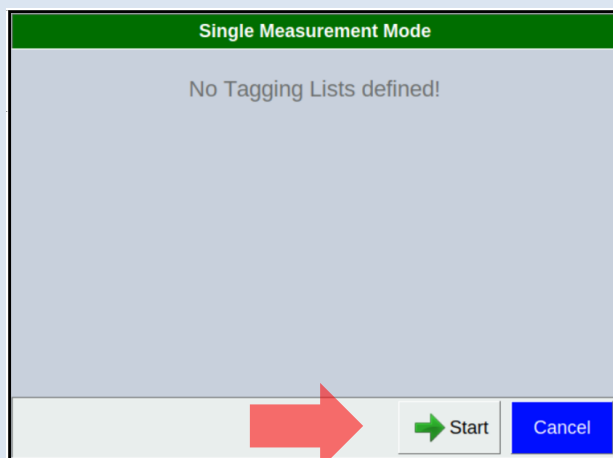
1



Click **MEA** to start a Manual Measurement.

Before the measurement can be started the user will be prompted to Select File-Tags By Default the Tag List is empty

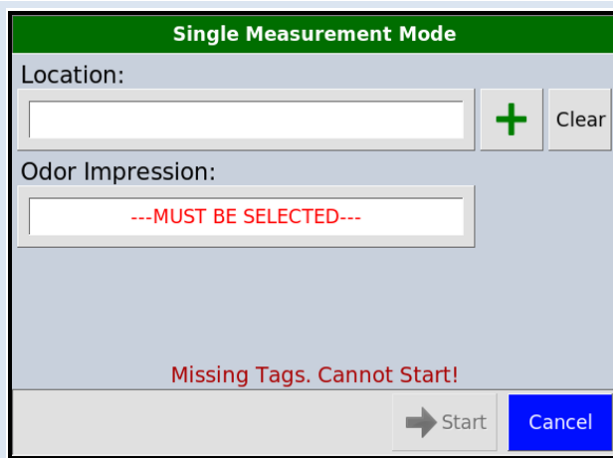
2



The **Start** Button is enabled if the Tagging Lists are empty. In Case of **Mandatory Tags** the user is prompted to select it. The Start Button is disabled until all mandatory Tags are selected

Click **Start** to run the measurement (or **Cancel**)

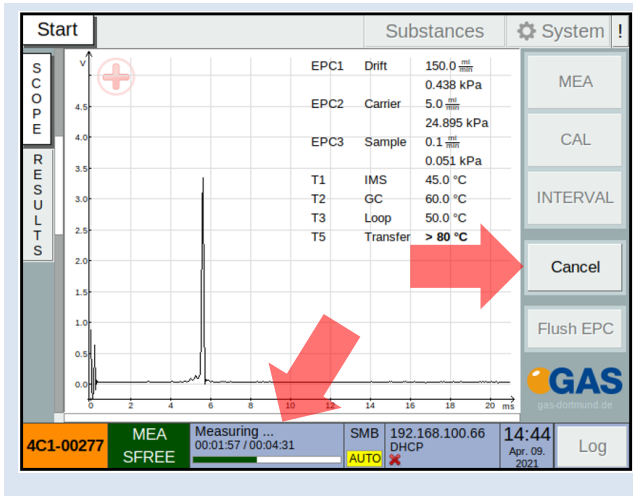
3



Typical Exemplary Screenshot. The Operator must select an odour impression tag before the Measurement can be started. The **Start** button is disabled



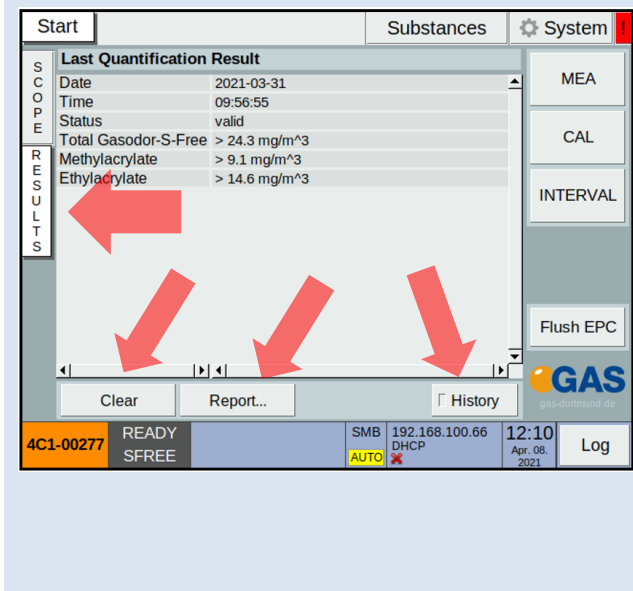
4



During the Measurement, the Operator can observe the progress of the ongoing data acquisition.

It also would be possible to Cancel the measurement

5



The **Start** Page also contains the **Results** Table. The Table shows the last Quantification Result.

Use **Clear** to delete previous results, **Report** to transfer the Results as PDF-report to **USB** or a **Remote Server**

Enable **History** to keep previously acquired results

## 6.3 Workflow: Run a Manual Calibration

The purpose of the manual calibration is to fine-tune the calibration the device.

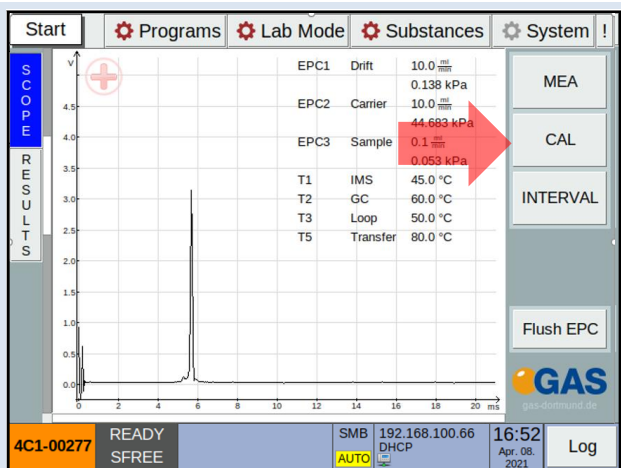


One or more substance calibrations are modified in the calibration process. Make sure that an appropriate calibration gas source is connected to the **Testgas In** socket at the rear of the housing.



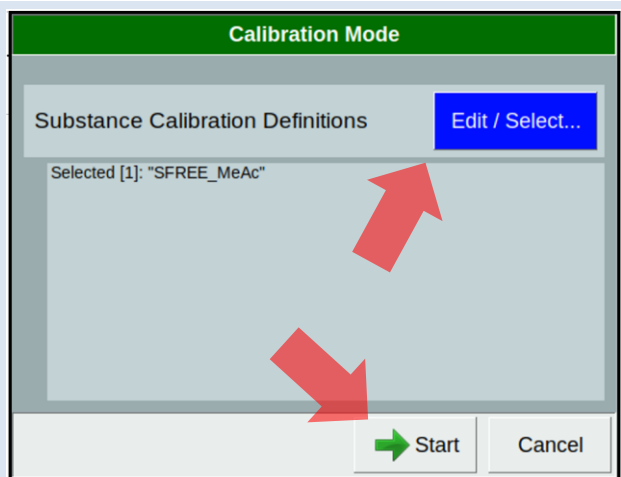
A manual calibration only works within certain margins around the factory calibration. When it varies too much from the factory calibration the user is informed, and the results of the manual calibration process are discarded.

1



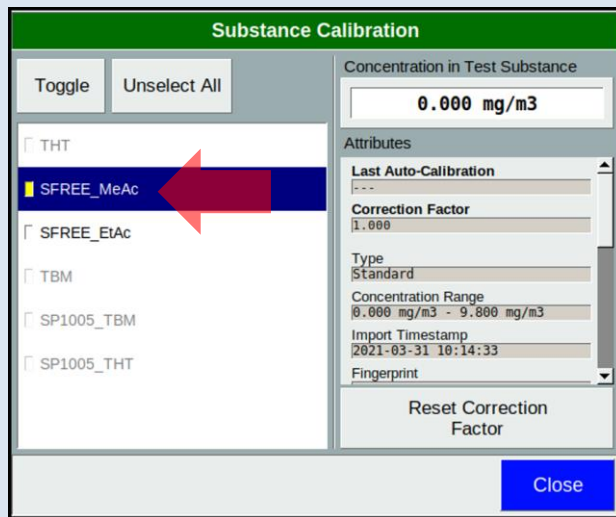
Click **CAL** to start a Manual Calibration Measurement  
This will open the Calibration mode dialog

2



After entering the **Calibration Mode** it is possible to **Edit/Select** the **Substance Calibration Definitions** or directly **Start** the Calibration measurement using the previous Definitions

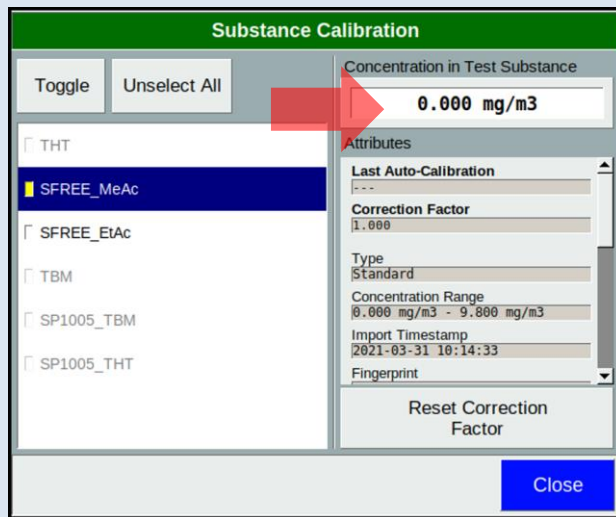
3



Select all substances that are present in the connected calibration gas source and should be calibrated. Selected substances are displayed with a **Yellow** mark.

Substances which can not be quantified with the selected Application are greyed out.

4

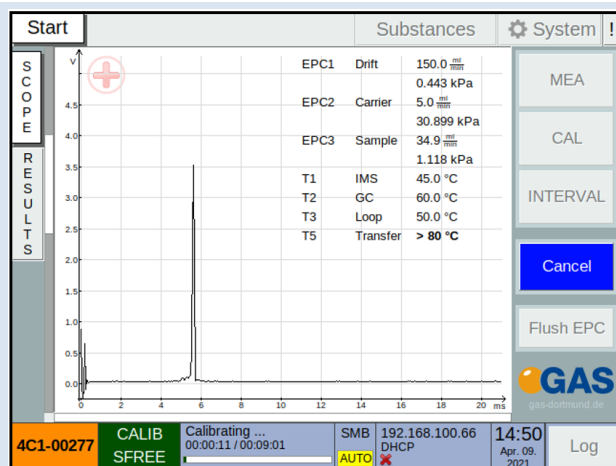


Enter the **concentration of the substance** which will be presented by testgas supply.

It is possible to view Attributes of the Calibration Model

Close the Substance Calibration Window and Start the Calibration Measurement

5

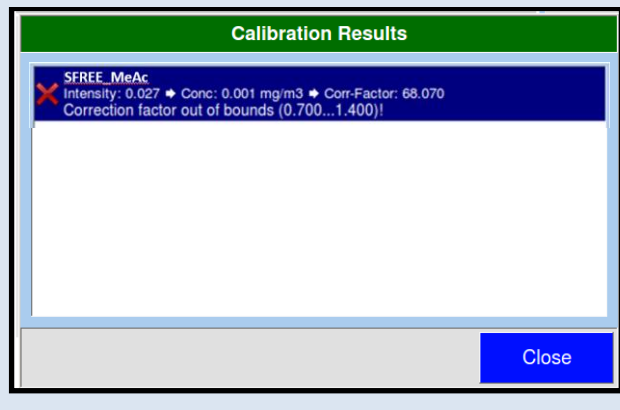


During the Calibration Measurement, the Operator can observe the progress of the ongoing data acquisition.

It also would be possible to **Cancel** the measurement

Instead of reporting Results a correction Factor is calculated. View the User-Manual for more Details

6



This Calibration measurement failed because the Correction Factor was out of the defined acceptable range.

## 6.4 Workflow Running automated Measurements

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### 6.4.1 Introduction to the Interval Mode

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In the interval mode scheduled measurements and calibrations are performed in a continuous and predefined sequence. The latest release of the GC-IMS-Odor Firmware provides a full flexibility to define the measurement intervals, as well as calibration and cleaning intervals.



All substance calibrations associated with the selected application mode are modified within the interval mode when calibrations are activated. Make sure that an appropriate calibration gas source is connected to the **Testgas In** socket at the rear of the housing.



A calibration only works within certain margins around the factory calibration. When it varies too much from the factory calibration the user is informed and the results of the calibration process are discarded.

## 6.4.2 Defining the automatic measurement schedule



Carefully plan your Interval schedule, consider the minimum time required for a measurement/calibration and consider the implemented hierarchy of priorities in case of coincidence: Cleaning has priority over Calibration and Calibration has priority over Measurement.



During a measurement device component values are dynamically modified. These values are displayed in the scope view.



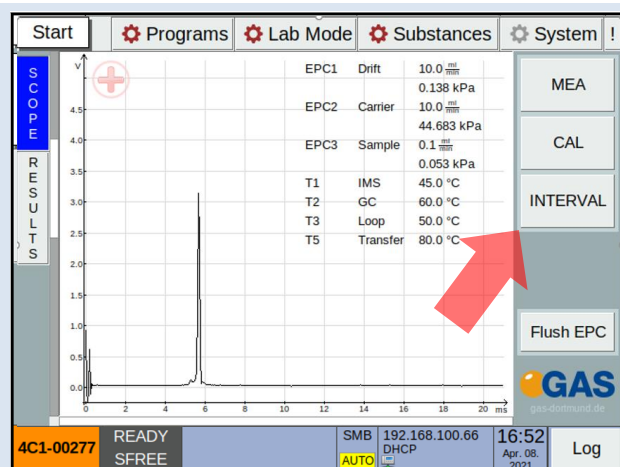
Any cleaning process must be completed ~2 hours prior to any measurement so that the internal components can cool down to the required temperatures.

This must be taken into account also if cleaning cycles are introduced in the interval schedule



Before every measurement and before every calibration the RIP and the default parameters are tested. In case this test fails the measurement is invalidated or the calibration is skipped.

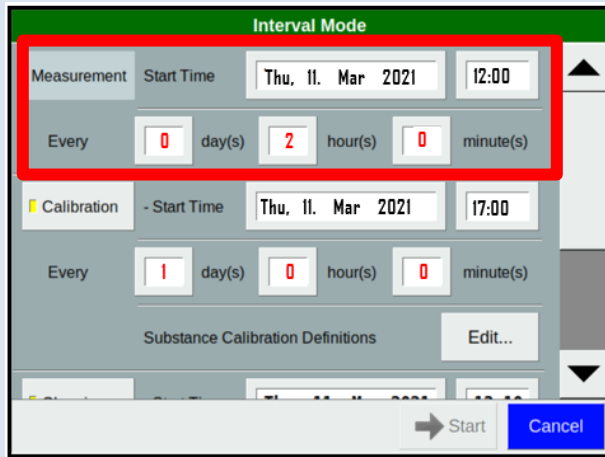
1



Select mode button: **Start** >

**INTERVAL.**

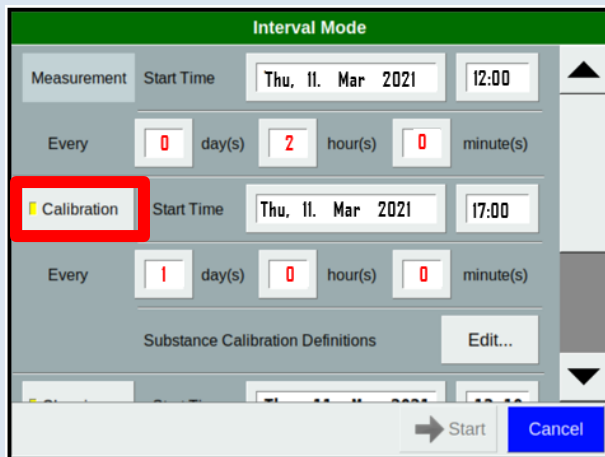
2



Select in the start dialog **Interval Mode** > **Measurement** - **Start Time** / **Every**: The start of the the first measurement and the repetition rate can be defined. Example: Defined **Start Time** and MEA **Every** 2 hours.

The minimum interval time set in **Every** must be longer than the **Measurement Program**.

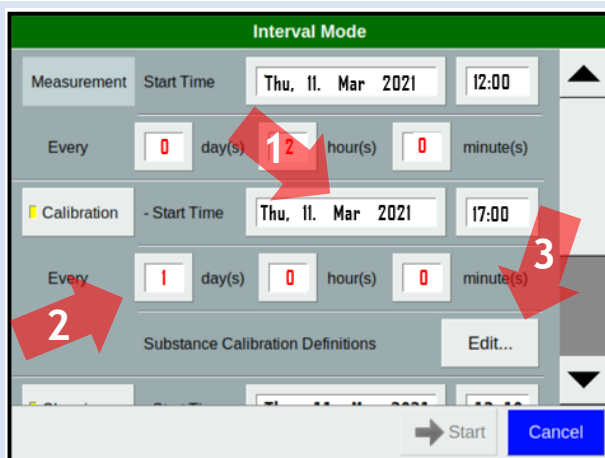
3



Activate or deactivate calibrations with **Interval Mode** > **Calibration**.

As soon as Calibration is activated the **Substance Calibration Definitions** must be checked and updated if required

4

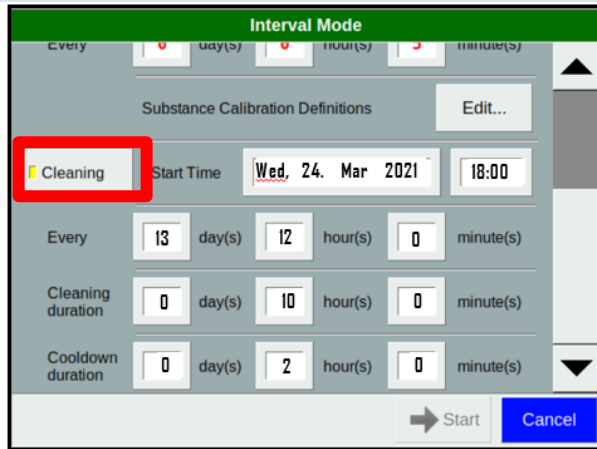


Example: Calibration every day at 17:00

With **Calibration** > **Start Time** (1)/ **Every** (2) select the start point of the first calibration and the repetition rate.

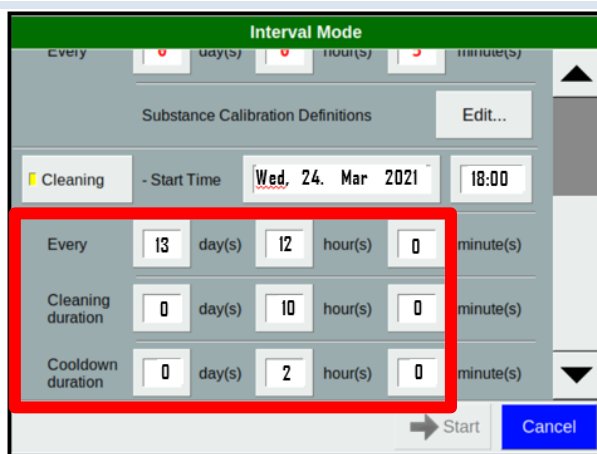
With **Substance Calibration Definitions** > **Edit...** (3) the loaded substance calibrations can be reviewed.

5



With **Calibration** > **Cleaning** it is possible to also enable Cleaning cycles and **Cleaning Start time** can be defined

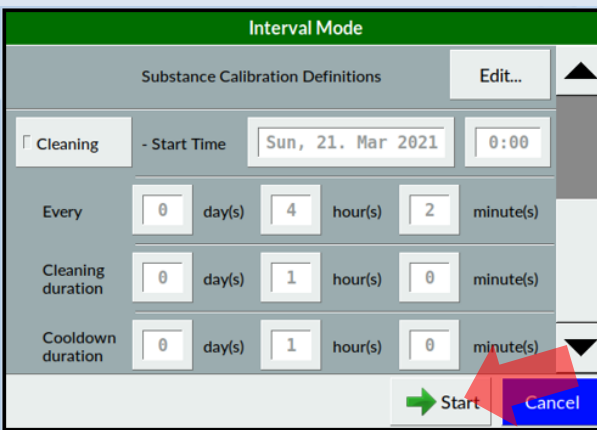
6



With **Cleaning - Every/ Cleaning Duration** and **Cooldown Duration** select the required Timing

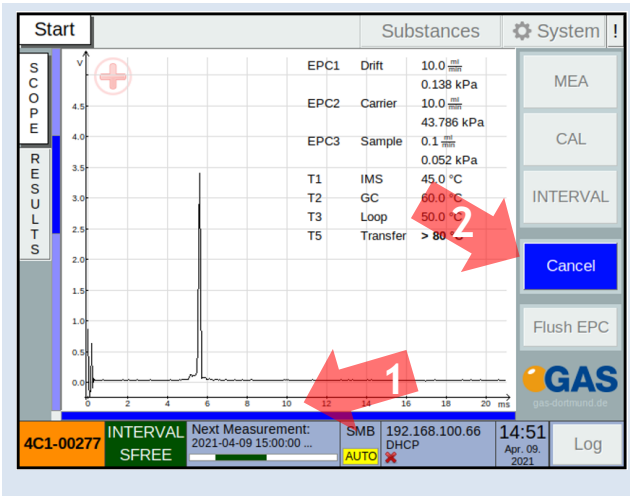
Example: 13 days after starting the Interval Mode on March 11, 2021 the first cleaning cycle is started at 18:00 for 10 hours, followed by a cool-down of 2 hours. Consecutive measurements will be re-initiated at 6 am in the morning of day 14 at the defined measurement cycle frequency.

6



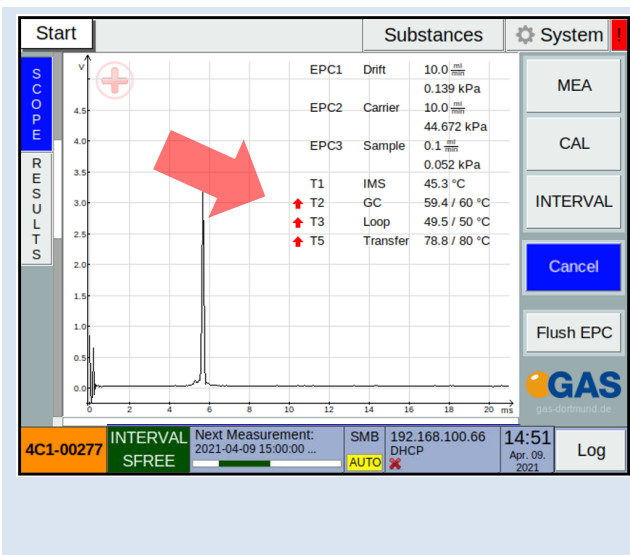
After all entries are defined the defined Interval can be started  
Close the dialog with **Start**. The Interval Mode is started. In the shown settings the Cleaning will not be included in the interval schedule.

7



In the status bar the starting point of the next measurement or calibration and the progress of a measurement or calibration are displayed (1). With **Start** > **Cancel** the process can be cancelled (2).

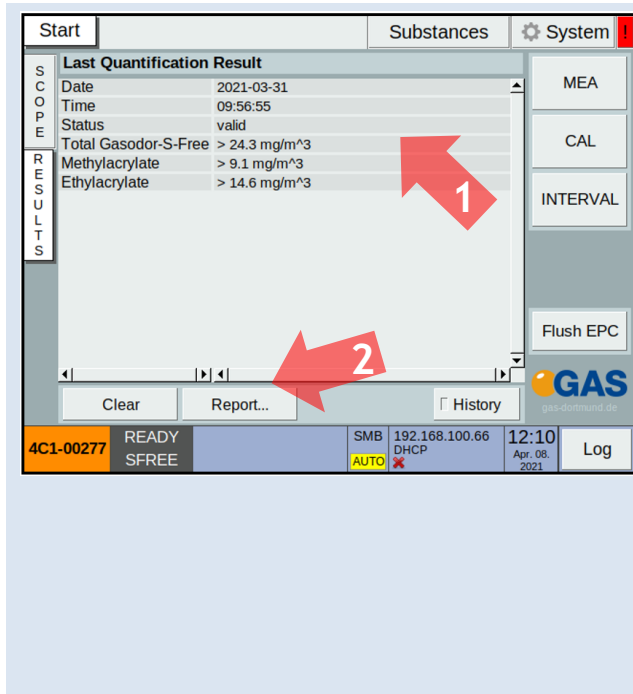
8



During the process, the device parameters can be modified. They are displayed on **Start** > **SCOPE**. Adjusting values are display in red.



# 9



On **Start** > **RESULTS** the result of the measurement is displayed when it has been successful (1).

Results can be copied to a connected USB device or a server with **Start** > **RESULTS** > **Report...** (2).

The concentration of the main substance is outputted to the current loop.