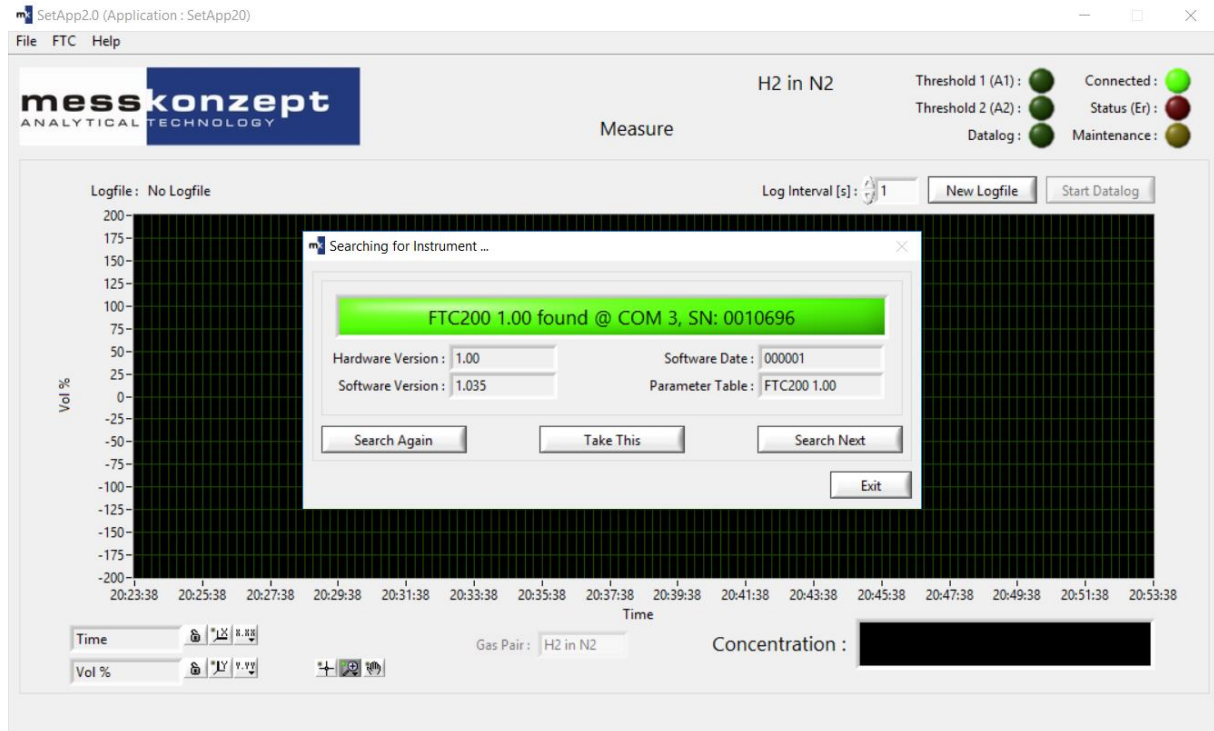


SetApp2.0

Laboratory Software
Operating Manual



Version 1.002 © Messkonzept GmbH
Date of issue: 06th February 2017

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Thank you for using SetApp2.0 from Messkonzept.

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The product described in this manual and products for use with it are subject to continuous developments and improvement. All information of technical nature and particulars of the product and its use (including the information in this manual) are given by Messkonzept in good faith. However, it is acknowledged that there may be errors or omissions in this manual.

For the latest revisions to this manual contact Messkonzept or visit www.Messkonzept.de.

Messkonzept welcomes comments and suggestions relating to the product and this manual.



Note!

The design of this software is subject to continuous development and improvement. Consequently, this software may incorporate minor changes in detail from information contained in this manual.



Important!

In correspondence concerning this software, please specify the version of SetApp2.0. You can find the version number in the **Help** dropdown menu choosing the **About** option.

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This manual applies to: SetApp2.0
Date of Release: July 2019
Software Version: 2.014

1. Operator safety

This section provides information and warnings which must be followed to ensure safe operation and retain the instrument in safe condition. Read this section carefully before beginning to install and use the software.

1.1 Notes on Safety Conventions and Icons



Warning!

“Warning” draws attention to application errors or actions that can lead to safety risks including the injury to persons or malfunctions – possibly even destruction of the device.



Note!

“Note” indicates an additional function or hint.

1.2 Warning Notices



The manufacturer does not assume liability for inappropriate handling of the software. Malfunctions caused by inappropriate handling may lead to hazards.

1.3 Safety Instructions



Caution!

For safe operation of the device please pay regard to all instructions and warnings in this manual.



Software changes may only be done by Messkonzept.

2. Download and Installation

2.1 Requirements

SetApp2.0 runs on PCs with Windows XP, Windows Vista, Windows 7, Windows 8 und Windows 10.

2.2 Download

You can download the [SetApp2.0](#) software from our homepage. Just follow the link in the manual. The file needs to be saved and extracted to the PC.

2.3 Installation

Execute the exe-file in the extracted folder. This will start the install wizard. Please read and accept the licence agreements and choose an installation directory. After installation the PC needs to be restarted once.

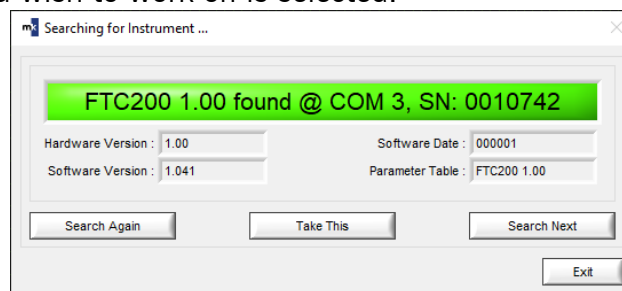
3. Connecting the device to PC via SetApp2.0

3.1 Connecting the device to RS-232

Set up the RS-232 connection as described in the manual of the device under consideration.

3.2 SetApp: COM-connection

Start the installed version of SetApp. A window titled “Searching for instrument...” should appear. After startup SetApp automatically begins scanning the PC’s COM-ports in ascending order for connected instruments. When an instrument is detected, the search pauses. Press “Take This” to proceed with the shown device. If multiple devices are connected to the same PC on several COM-ports, click “Search Next” until the device you wish to work on is selected.



If you encounter problems finding the device, please check that:

- SUB-D and/or USB cables are connected properly
- The device is connected to a power supply

4. Settings

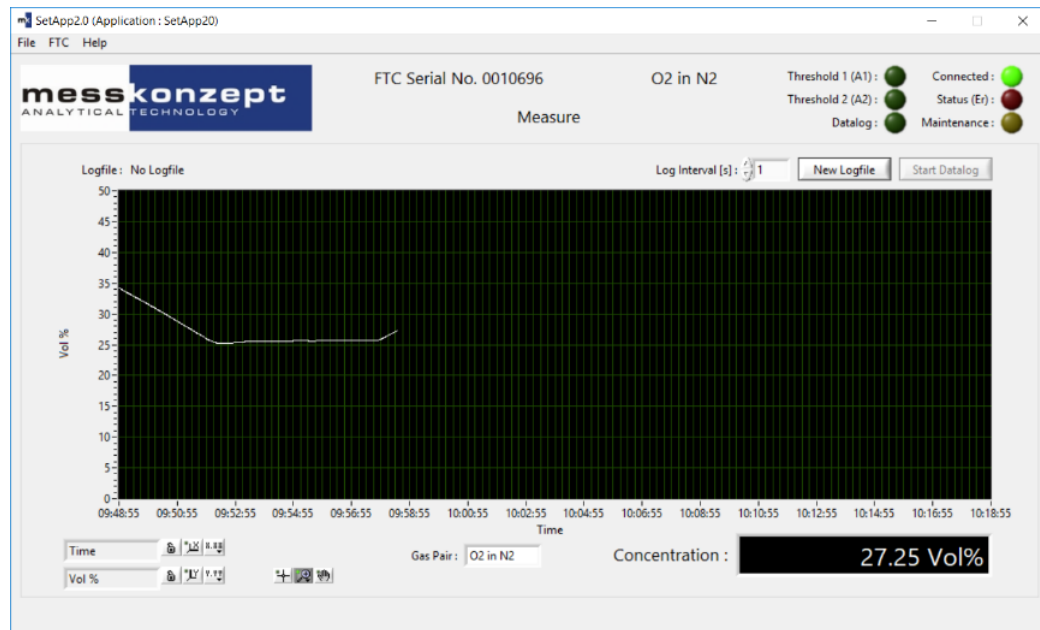
The structure of this manual follows the menu bar in the top left corner of SetApp 2.0.

Step by step the manual will explain every single point of the menu.

File

The menu option **File** has 2 selections **Main Chart** and **Exit**.

4.1 Main Chart



The Main Chart is the main window for reading measurement values, saving data, adapting the scale in x (time) and y (value) direction.

Note: The unit of the concentration in the bottom right corner is changed in the **General Settings** menu option.

4.1.1 The context menu

Section: 1	Clear Chart Synchronize to PC Clock Export
2	Plotunit -> Vol% Plotunit -> ppm
3	Scale 0 to 100 Vol% Scale 0 to 50 Vol% Scale 0 to 10 Vol% Scale 0 to 5 Vol% Scale 0 to 1 Vol%
4	Scale 0 to 10000 ppm Scale 0 to 1000 ppm Scale 0 to 100 ppm
5	Scale 10 % around actual reading Scale 5 % around actual reading Scale 2 % around actual reading Scale 1 % around actual reading
6	Concentration autoscale once Concentration autoscale
7	Time 1 min Time 2 min Time 5 min Time 10 min Time 30 min Time 1 h Time 2 h Time 6 h Time 12 h Time 24 h
8	Time autoscale once Time autoscale

To open the context menu “right click” on the grid. The menu is divided into eight sections.

Section 1:

Clear chart will erase all graphs from the chart and will shift the timeline to the point where you cleared the chart.

Synchronize to PC clock will use the PC clock as reference for the timeline.

Export has three options:

1. **Export data to excel**
2. **Export data to clipboard**
3. **Export a simplified graphic** from the chart.

Section 2:

Choose the units for the y-axis. Either the unit is ppm or vol. %.

Section 3 and 4:

Scale the range of y-axis.

Section 5:

Scale the range of the y-axis around the actual reading. For instance, **Scale 10% around actual reading** will take the actual reading take 10% of the value. The upper boundary is the actual reading plus the 10%, whereas the lower boundary the actual reading minus 10% is.

Section 6:

For either **Concentration autoscale once** and **Concentration autoscale** the displayed range of the y-axis gets scaled to the highest recorded value and the lowest recorded value. The boundaries for **Concentration autoscale once** will be static, whereas **Concentration autoscale** will adapt the axis boundaries of the y-axis automatically/continuously.

Section 7:

Choose a time span for the x-axis.

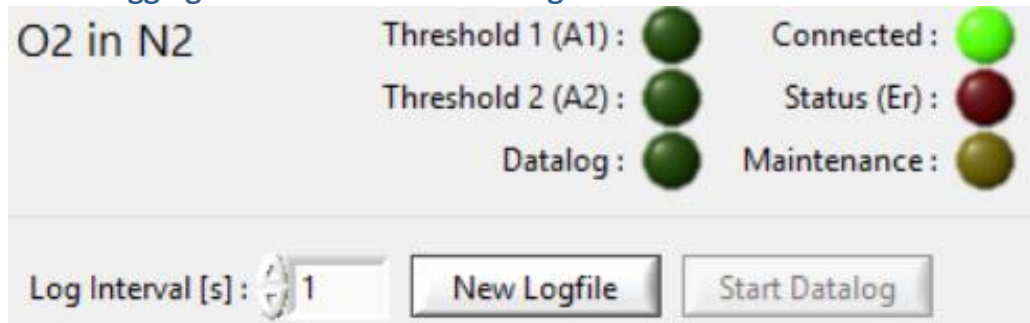
Section 8:

Section 8 is analogue to section 6 but with respect to time (x-axis):

Time autoscale once will set the boundaries of the x-axis to the first recorded value on the left side and to the time when Time auto scale once was pressed on the right side. After that the span of the time is static. The window will continue to move and on the right side of the x-axis will always be the current time.

Choosing **Time autoscale** will set the left boundary to the point when the recording started, while the right boundary constantly adapts to the current time. This means the span of the window is constantly growing.

4.1.2 Logging Data and the indicator lights



Gas pair:

The **gas pair** which is currently selected is displayed next to the indicator lights in the top right corner of the measure window. In the figure above it is **O2 in N2**.

Indicator lights:

There are six indicator lights.

Connected:

The top right light indicates if the PC is "**Connected**" to a device.

Status (Er):

The red light "**Status (Er)**" insures proper operation. The light is on the right side second from the top. Which "errors" will trigger the status light, can be chosen in the settings for the Status (Er) (**FTC -> Messaging and Status**).

Maintenance:

If the yellow light "**Maintenance**" on the bottom right lights up, the device may need an inspection. Check the manual of the device for further information.

Threshold 1 (A1) and Threshold 2 (A2):

The lights "**Threshold1 and 2**" on the left side shine, when the concentration thresholds are surpassed. The threshold settings can be found in **FTC -> Threshold / Output Configuration**.

Datalog:

The "**Datalog**" light indicates if data is currently logged.

Datalog:

Log Interval [s]:

The log rate is chosen at "**Log Interval [s]**". It is only possible to insert positive integers. The value maps the number of seconds before the the next value gets logged. For example, if s is set to 2, a value will be logged every 2 seconds.

New logfile:

The button "**New Logfile**" will open a save file dialog. Choose a directory and a name for the .csv file. The logged data is saved in the here selected file. Unfortunately you cannot select an existing .csv file to resume logging into it. Please start a new log and copy the data lines to the desired location manually.

Start Datalog - Stop Datalog:

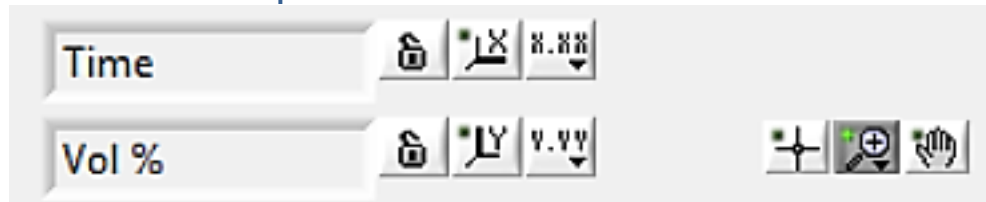
If a logfile is selected the button "**Start Datalog**" will turn from grey to black. Pressing the button starts the recording and changes the name on

the button to “**Stop Datalog**”. Pressing the button opens a reminder window asking for confirmation that the Datalog can be ended.


Note:



You can resume logging into an existing log file after logging has been stopped (unfortunately this is only possible if the log file has already been selected before): Just press **Start Datalog** again. Data will be written in the next available empty line of your log file. Note that the file cannot be opened in another program (e.g. Excel) while logging. If you wish to review log results while logging continues, make a copy of the log file and open the copy.

4.1.3 More Chart options



The Label of the x and y axis can be changed by clicking on the entry fields. Enter the desired name and click anywhere else to apply the change. The the newly chosen axis labels will appear next to the chart.

The **lock**  button activates autoscale either for the x-axis or the y-axis.

The  button and the  button are equivalent to auto scale once.



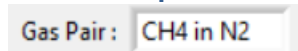
The **X.XX** and the **Y.YY** buttons offer a wide variety of options. They are pull down menus in which you can choose:

- the **number system**, for instance the dual system, the decimal system, scientific notation and many more,
- the **accuracy**, you can choose the number of decimals,
- the **visibility of the axis and their labels**
- the **color of the grid**.



- The **reticle** button on the left has no function.
- The **zoom** button opens a pulldown menu in which you can choose from a variety of zoom options.
- The **hand** button on the right allows you to move the graphic in the coordinate system without changing the range of the x and y scales.

4.1.4 Gas pair selection (only applicable with optional Multi Gas Mode)



In case your instrument is prepared for the multi gas mode. Clicking on the entry field will open up a pulldown menu with all the gas pairs. The selection of the gas pair also changes the gas pair in the device.

4.2 Exit

Clicking on the **Exit** option in the **File** pulldown menu closes **SetApp2.0**.

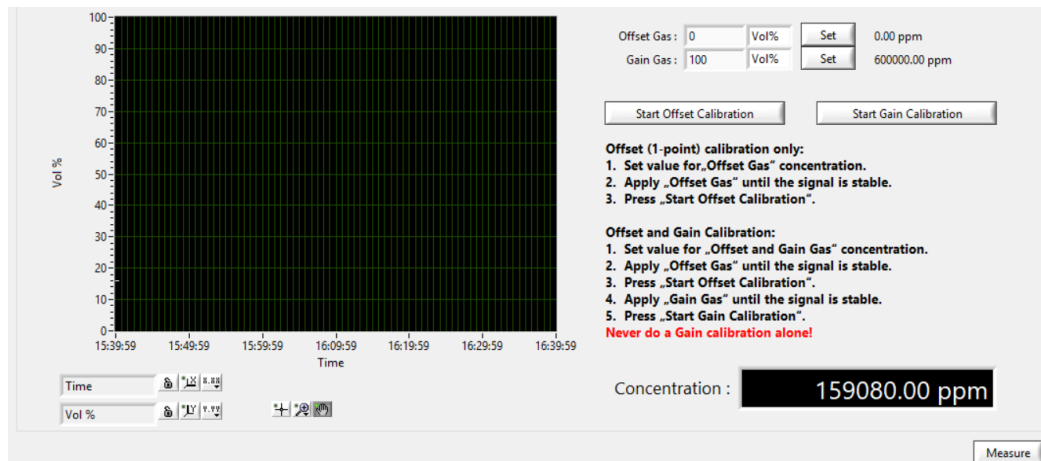
FTC

The menu option FTC has six selections. **Measure, Calibration, Parameter List, Threshold/ Output Configuration** and **Messaging and Status**

4.3 Measure

Main Chart is a synonym for **Measure**. Opening the **Main Chart** will open the **Measure** menu. For further information read the section **4.1 Main Chart**.

4.4 Calibration



You can calibrate the device with the help of SetApp2.0. It is either possible to do an **offset calibration** or an **offset plus a gain calibration**. **You may not do a gain calibration first.**



Offset (1-point) calibration:

1. Set the value for **“Offset Gas”** concentration.
2. Apply the Offset Gas in the chosen concentration.
3. Wait until the signal is stable. The run in time is dependant of the used gases, please wait at least 30 minutes for precise results (>60min. for helium mixtures). The signal should not change greatly for several minutes. Minor noise is fine.
4. Press **“Start Offset Calibration”**.

Gain (2-point) calibration:

1. Set the value for **“Offset Gas”** concentration.
2. Set the value for **“Gain Gas”** concentration.
3. Apply the Offset Gas in the chosen concentration.
4. Wait until the signal is stable. The run in time is dependant of the used gases, please wait at least 30 minutes for precise results (>60min. for helium mixtures). The signal should not change greatly for several minutes. Minor noise is fine.
5. Press **“Start Offset Calibration”**.
6. Apply the Gain Gas in the chosen concentration.
7. Wait until the signal is stable (see bullet point 4 above).
8. Press **“Start Gain Calibration”**.

Example:

Range: 20-50 Vol.% H₂ in N₂.

1. Choose the gaspair H₂ in N₂ as described in 4.1.4 or on the instrument.

2. Choose 20 Vol.% for the **Offset Gas** and 50 Vol.% for the **Gain Gas** then press Set for both of them.
3. Apply a gas 20 Vol.% H₂ in N₂. The gas needs to be mixed very precisely otherwise the calibration will be bad.
4. When the signal is stable press the **Start Offset Calibration** button.
5. Apply a gas 50 Vol.% H₂ in N₂. Again, it is very important to use very precisely mixed gases.
6. When the signal is stable press **Start Gain Calibration** button.
7. The calibration is finished.

If you have any uncertainties on how to use the calibration tool, please contact us and we will gladly assist you in calibrating the device.

4.5 Parameter list

The **parameter list** is a table in which all settings and calculations are listed. **Parameters** can be read from the instrument by clicking on the chosen parameter and then on the **refresh** button. The current parameter list can be downloaded from the instrument to a file on your computer. Pressing the **Save Parameter List to File** button opens a save file dialog in which you can choose a file name and location to store the parameter list. A parameter list can be downloaded to the device also. To download a parameter list, you need to click on the **Download Parameters to FTC** button. Choose the desired .par file and download it. You will get a warning that uploading incorrect parameters can destroy the device. Please contact us if you are not sure how this works, we will gladly help you.

Often times Messkonzept can assist you by remote maintenance. In correspondence with a service employee, you might be asked to send a parameter list of your device to Messkonzept. If your problem can be fixed by changing device parameters, you might be asked to download an updated version of the parameter list to your device.



Warning: Changing parameters in the parameter list can lead to serious damage for the device and the vicinity. Do not ever write in the parameter list without contacting Messkonzept!

Refreshing all Parameters writes the current value of each parameter in the value column of the parameter list.

The **Work Directory** is the default directory for saving and loading parameter lists.

4.6 Threshold / Output Configuration

4.6.1 Threshold

The screenshot displays the configuration interface for Thresholds and Outputs. It includes sections for Threshold 1 (linked to Relay 1), Threshold 2 (linked to Relay 2), Current Loop (not for FTC200-OEM), Analog Voltage Output 1, Analog Voltage Output 2, and General Settings.

Threshold 1 (linked to Relay 1)

Mode:	Alarm OFF	Set	Process Low ->
Threshold:	0	Vol%	Set 200000.00 ppm
Hysteresis:	1.00	%	Set 1.0

Threshold 2 (linked to Relay 2)

Mode:	Alarm OFF	Set	Process High ->
Threshold:	0	Vol%	Set 100000.00 ppm
Hysteresis:	1.00	%	Set 1.0

Current Loop (not for FTC200-OEM)

Mode:	4 - 20 mA (Err)	Set	Output OFF
Concentration lout Min:	0	Vol%	Set 0.00 ppm
Concentration lout Max:	100	Vol%	Set 100000.00 ppm
lout Constant:	19.5	mA	Set 10.000
Error Current:	3.6	mA	Set 3.000
Correction Factor:	0.980392		Set 0.980392

Analog Voltage Output 1

Select Parameter:	Output OFF	Set	P53 (Block Temp.)
Value:	0	->	1.00 Volt
Value:	1E+6	->	9.00 Volt
Set Analog Output 1: 7.307 V			

Analog Voltage Output 2

Select Parameter:	Output OFF	Set	Output OFF
Value:	0	->	1.00 Volt
Value:	1E+6	->	9.00 Volt
Set Analog Output 2: 0.000 V			

General Settings

Unit (Concentration):	ppm	Decimal point (csv Datalog):	Dot
Digits of Precision (Concentration):	2	Delimiter (csv Datalog):	Semicolon

Buttons: Reset To Factory Defaults, Refresh all Parameters, Search for FTC, Restart FTC, Measure

Threshold 1 and Threshold 2 are connected to relays.

Threshold 1:

By setting thresholds the gas concentration can be surveyed, such that once the concentration surpasses a certain boundary the relay as well as the indicator light go on.

- *Mode*
Process High to Low or **Process Low to High** decide if the relay triggers on increasing concentration (High to Low) or decreasing concentration (Low to High). To choose a **mode** click on the entry field next to **Mode**. Choose between 1. **Alarm OFF** 2. **Process High to Low** and 3. **Process Low to High**.
- *Value and Unit*
The threshold value and the unit can be set in the entry field next to **Threshold**.
- *Hysteresis*
Set the value of the **hysteresis** in the entry field next to **Hysteresis**. The **hysteresis** is a value between 0 and 100%. For instance, if the signal is rising such that the threshold gets surpassed and the relay goes on, when the signal drops the threshold relay will not switch of the moment it goes below the threshold value. If the signal drops below the threshold value minus the hysteresis then the relay goes off. If the hysteresis is 1% the relay will go off once the threshold value is below the original threshold value minus 1% of the threshold value.

Threshold 2

Threshold 2 is similar to threshold 1 but offers additional functionalities. **Threshold 2 can be linked to the maintenance status signal as well as to an auxiliary signal** fed from outside into the instrument. Like the internal signal, the auxiliary signal can be set to either cross the threshold from high to low or from low to high. The procedure to set the threshold is the same as explained for **Threshold 1**.

4.6.2 Current Loop (not for FTC 200-OEM)

Output OFF
I-Out frozen
Constant I-Out
4 - 20 mA
✓ 4 - 20 mA (Err)
0 - 20 mA
0 - 20 mA (Err)
0 - 20 mA (Corr.)

The **Current Loop** is an output signal. You can choose between different output modes with and without live zero and error indication. For more details check the manual of the instrument and map it to the amperage. To change the mode, click on the entry field next to **mode**. Choose from the popup menu the preferred mode by clicking on one of the menu entries. Press the **Set** button to validate the selection.

Output OFF:

Output OFF sets the amperage value to 0mA.

I-Out frozen:

I-Out frozen saves the latest mA signal and uses this value as a constant signal output.

Constant I-Out:

Constant I-Out lets you choose a mA value between 0 and 22 mA. The chosen value will be the output.

4-20mA and 4-20mA (Err):

The lower boundary of the measuring range is mapped to 4mA and the upper boundary is mapped to 20mA. The measuring range can be set in the **Concentration Iout Min** and the **Concentration Iout Max** entry fields. In the mode with the **(Err)** ending a mA value from 0mA 22mA can be set for the **Error Current**. If the **Status (Er)** relay goes on the **Error Current** value will be given out.

0-20mA and 0-20mA (Err):

The lower boundary of the measuring range is mapped to 0mA and the upper boundary is mapped to 20mA. The measuring range can be set in the **Concentration Iout Min** and the **Concentration Iout Max** entry fields. In the mode with the **(Err)** ending a mA value from 0mA 22mA can be set for the **Error Current**. If the **Status (Er)** relay goes on the **Error Current** value will be given out.

0-20mA (Corr.):

The current output of this mode creates a voltage drop from 0V to 10V at a 510 Ohm resistor. Set the **Correction Factor** in the entry field.

4.6.3 Analog Voltage Output

Analog Voltage Output 1 and **Analog Voltage Output 2** can be configured in such a way that the chosen parameter corresponds to the voltage output. Select a parameter from the dropdown menu in the entry field next to **Select Parameter** and confirm it by pressing the **Set** button. Then choose the start and end boundaries for the values as well as for the voltage. The lower boundary of the measuring range will be mapped to lower boundary of the voltage range. Analogously the higher boundary of the measuring range will be mapped to the upper boundary of the voltage range. The measured signal needs to be inserted in **ppm**. Once the values are inserted confirm the settings by pressing the **Set** button. The calculated voltage signal will be displayed next to the **Set** Button.

4.6.4 General Settings

In the general settings menu in the bottom right corner you can change settings concerning the displayed output and the Datalog.

Display Settings:

Unit(concentration) is either parts per million (ppm) or percent (%).

Digits of Percision (concentration) is any number between 0 and 3.

Datalog Settings:

Decimal point (csv datalog) is either dot(.) or comma(,).

Delimiter (csv Datalog) can be any of the following semicolon (;), colon (:), comma (,), and tabulator ($\text{Ctrl}+\text{I}$)

4.7 Messaging and Status

FTC single Status indication		Relevant for FTC "Status (Er)"
Concentration Threshold 1 :	No	No
Concentration Threshold 2 :	No	No
External Error :	Yes	Yes
TC Max Error :	Yes	Yes
TC Min Error :	Yes	Yes
Bridge Voltage Max Error :	Yes	Yes
Bridge Voltage Min Error :	Yes	Yes
Block Temp. Max Error :	Yes	Yes
Block Temp. Min Error :	Yes	Yes
Flow Threshold 1 :	No	No
Flow Threshold 2 :	Yes	Yes
Calibration Variation Error :	No	No
Calibration Deviation Error :	No	No
Calibration Offset Error :	No	No
Calibration Gain Error :	No	No
EEPROM Error :	Yes	Yes

FTC Messaging:

The first column **FTC Messaging** is a table of indicators. The indicators show which settings are active. The empty lines in between are for future indicators. More details concerning the content of the indicators can be found in the manual.

FTC Messaging Setup:

The second column **FTC Messaging Setup** consists of buttons which turn options on and off. As in the first column the empty lines are for future options. More details concerning the content of the buttons can be found in the manual.

FTC Single Status Indication / Relevant for FTC Status(Er):

The last column is split into two columns. First the **FTC Single Status Indication** column and second the **Relevant for FTC "Status(Er)"** column.

- *FTC Single Status Indication column*
In the **FTC Single Status Indication** column the indicators show for which status the conditions are met.
- *Relevant for FTC Status(Er)*
If a button in the **Relevant for FTC "Status(Er)"** column is set to **Yes**, and the corresponding indicator comes on then the **Status (Er)** indicator will come on.
If a button is set to **No** the indication of the corresponding light is irrelevant for the **Status (Er)** indicator.

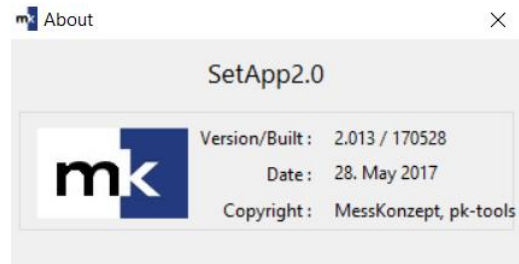
Help

The menu option Help has two selections. **About** and **Search for FTC**.

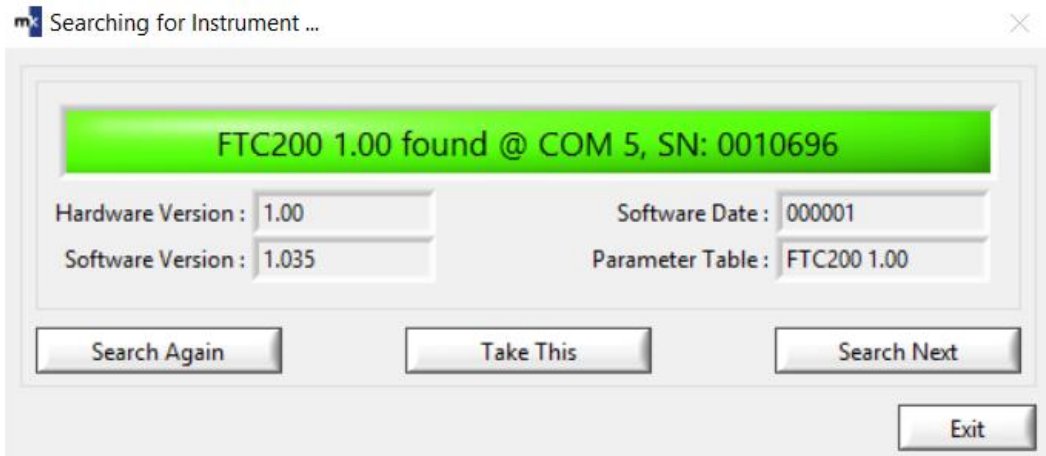
4.9 About

The menu option **About** gives information about

- the **Version** number,
- the **Built-id**,
- the release **Date** and
- the **Copyright** owners.



4.10 Search for FTC



Click on the **Search for FTC** option. The above window will pop up. SetApp2.0 will then automatically look for FTC devices.

If there is more than one device connected to the PC. Use the **Search Next** button to toggle to the next device till the desired instrument is selected.

Once the right device is selected click on the **Take This** button to connect the SetApp2.0 to the instrument. In case SetApp2.0 can not find the device, there is something wrong with the connection. How to connect the device is described in **section 3**. If the connection is repaired, click the **Search Again** button and try to find the instrument.



Warning: The **Exit** button closes the SetApp2.0 entirely.



Warning: Opening the **Search for FTC** menu disconnects the instrument with SetApp2.0. To Connect the same instrument again, search for the instrument and select it again. While the **Search for FTC** window is open no data is logged and no values are drawn to the measure grid.