Calibration Kit

for IUL Air Samplers Adjustment with 90mm lid

Instructions for Use

Doc. No 50006128-08

Contents

1. INTRODUCTION

Thank you for choosing the Calibration Kit. We are confident that this instrument will help you with the air sampler's maintenance.

Before using the Calibration Kitit is essential that you read the Calibration Kit Instructions for Use carefully. Following detailed information in that Instructions for Use will ensure safe operation and maintain the system in a safe condition.

1.1. Intended use of the Calibration Kit

The Calibration Kit is an instrument to measure and adjust the flow rate of all IUL SA air samplers with a 90mm lid: Spin Air Master, Spin Air Mate, Spin Air Basic, and Basic Air.

Thanks to the Calibration Kit, it is possible to adjust the air samplers, as well as it is an essential tool for most of the services. With the Calibration Kit it is not necessary to send the air samplers to IUL headquarters, saving time servicing air samplers.

1.2. Prologue

The Calibration Kit is an anemometer with a laminar flow tube, which measures have been taken to determine the velocity that corresponds to a specific flow. This velocity is called the reference velocity.

Each Calibration Kit will have its reference velocity due to the small differences in performance of the anemometer, its housing, and the laminar flow tube. In order to guarantee the correspondence between each flow and its reference velocity, the Calibration Kit itself shall be checked regularly (annually) and thus recalculate its reference velocities.

Since the Calibration Kit is an anemometer, the magnitude measured is the sucked air velocity by the device to be calibrated. The velocity indicated in the tube corresponds to the flow of 100 l/min (with the 90mm lid). In the manufacture of the Calibration Kit "KM/H" have been chosen as velocity units.

1.3. Glossary

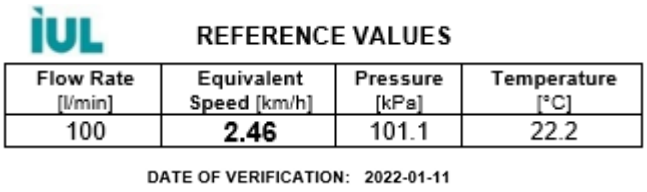
Flow rate: it is the volume of air that passes per unit of time, in our case, it will always be in liters per minute.

Petri Dish: it is the sampling plate that should be subsequently incubated.

Lid: it is the removable perforated lid for air samplers for 90mm dishes (100l/min).

90mm lid to use with a flow rate of 100 l/min

Reference label: it is the label with reference values for the flow rate at 100l/min, placed in the front of the laminar flow tube.



iUL REFERENCE VALUES

Flow Rate [l/min]	Equivalent Speed [km/h]	Pressure [kPa]	Temperature [°C]
100	**2.46**	101.1	22.2

DATE OF VERIFICATION: 2022-01-11

1.4. Scope of delivery

The delivery includes the following items:

a- Carrying case

b- Laminar flow tube with probe (includes the reference label)

c- Data logger terminal

d- Three AA alkaline batteries (inserted in the terminal)

e- USB-micro USB cord

f- CD with the Calibration Kit ‘s Instructions for Use, Spin Air’s Instructions for Use, Data Logger Transfer software, and thermo-anemometer user’s manual.

1.5. Operating conditions

The Calibration Kit must be used within the following environmental conditions:

- Pressure: from 95 to 103 kPa
- Temperature: from 15 to 30ºC
- Relative humidity: from 10 to 90% without condensation
- Altitude: from 0 to 500m

NOTE: Using the Calibration Kit out of Operation Conditions could deviate the flow measurement by more than 5%.

ATTENTION: For proper adjustment of an air sampler, the Calibration Kit must be used in the same conditions where the air sampler will be used.

2. SAMPLING

Follow the instructions of this chapter if you want to generate a report of the flow rate measurements for one air sampler.

2.1. Preparing the set

1- Place one Petri dish in its housing and the 90mm perforated lid in the air sampler by screwing it on clockwise.

2- Set the flow rate of the air sample to 100 l/min (according to the mounted lid). To do so, follow the next steps:

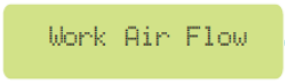
From the main screen (A), press 2 seconds ✓ to access the advanced menu.

A

On the settings screen (B), press ✓ to access the “Settings” menu

B

On the air flow screen (C), press ✓ to access the “Work Air flow” menu



C

Use ▲ and ▼ to set 100 l/min.

Press ✓ to save selected value.

3- Place the Laminar flow tube in the air sampler's lid, press it down to ensure that it fits. Ensure that the cable of the Laminar flow tube is connected to the Data logger terminal.

4- Switch on the data logger terminal of the Calibration Kit by pressing the power on button.

5- Run the air sampler and wait before measurement recording around two minutes for the system stabilization.

2.2. Measurement recording

Remember to wait around two minutes with all set running, to stabilize the Calibration Kit measurement.

A long-press of the MEM/REC button starts the recording process.

This recording will store one measure every second, and will not stop until the MEM/REC button is long-pressed again.

2.3. Export recording data to a computer

Follow these steps to export data from the data logger terminal to a spreadsheet:

Step 1. Data logger software installation (see Appendix B:)

1- Install the “Data Logger Transfer” software (only the first time). From the CD delivered with the Calibration Kit or from the next link:

https://catalog.chauvin-arnoux.com/fr_en/c-a-1227-thermo-anemometre-3542.html

2- Run the “Data Logger Transfer” software.

Step 2. Data logger connection (see Appendix B:)

3- Connect the data logger terminal of the Calibration Kit to a computer through the USB-micro USB cord.

4- Press the ‘Add an instrument’ button and follow the wizard (only the first time).

Step 3. Recorded Session register (see Appendix B:)

5- On the left-side panel, select the device and press on the show-more icon.

6- Select ‘Recorded Sessions’.

7- On the main window, double-click on the proper registry.

8- A new window is displayed, wait until the registry is downloaded.

9- Select the registry and press the ‘Open’ button.

10- On the upper menu, select ‘File’ and then ‘Export to a Spreadsheet’.

11- On the new window, set an appropriate ‘Starting date/time’ and/or ‘Ending date/time’ to get the desired time in the ‘Session information’ panel. Then press the ‘OK’ button.

12- Select a folder to export the spreadsheet, set it an appropriate name, and save it.

13- Open the new file and go to the sheet named ‘Summary’ to find sampled values.

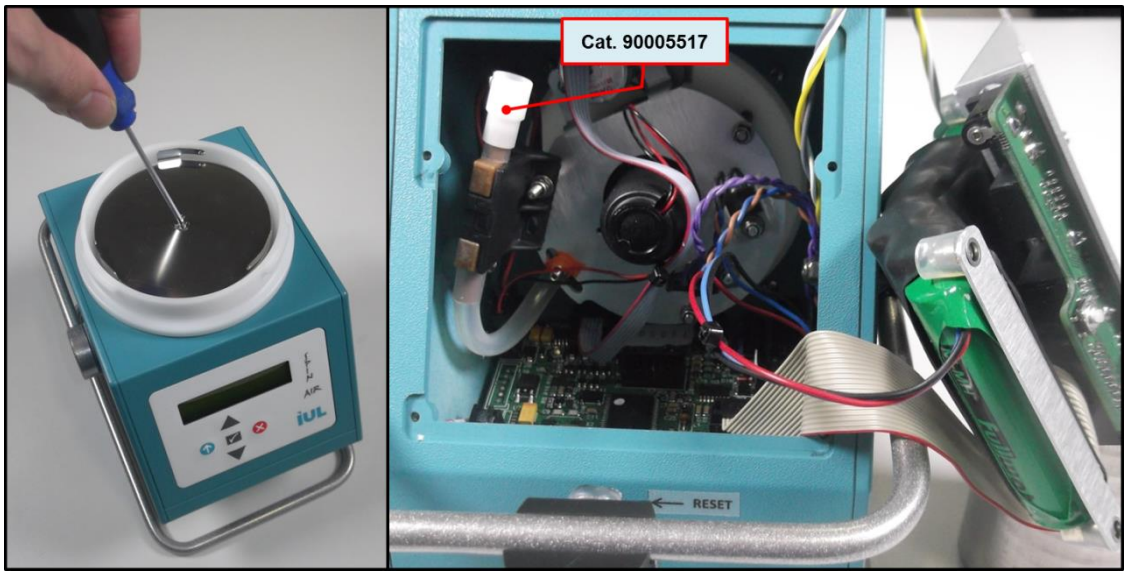
Summary			
Date:	Time:	Channel T1	Channel V1
		(°C)	(km/h)
21/2/2022	16:30:07	23,1	2,43
21/2/2022	16:30:08	23,1	2,43
21/2/2022	16:30:09	23,1	2,43
21/2/2022	16:30:10	23,1	2,43
21/2/2022	16:30:11	23,1	2,43
21/2/2022	16:30:12	23,1	2,43
21/2/2022	16:30:13	23,1	2,43
21/2/2022	16:30:14	23,1	2,43
21/2/2022	16:30:15	23,1	2,44
21/2/2022	16:30:16	23,1	2,44

3. ADJUSTMENT

3.1. Recommendations before air sampler's adjustment

Clean the perforated lid with soap or alcohol to remove any dirtiness from the holes and then use compressed air to dry them.

Take out the plate holder using a 2,5mm Allen key. Clean the air inlet of the mechanism with alcohol using a swab or a cloth.



Change the flow sensor filter (Cat. 90005517) every 2 adjustments if the device is used in clean environments. And change the filter on every adjustment if the device is used in more contaminated environments.

To replace the filter, open the rear cover, pull out carefully the old filter and place the new one pressing a bit.

NOTE: The filter replacement must be done before performing the adjustment since it affects the flow rate.

3.2. Important notes about adjustment

- The air sampler must be adjusted in similar environmental conditions as it will be operated. The most critical value is the air pressure (depends on altitude), and it should be as close as possible to the usual pressure of the facilities where the air sampler will be used.
- Do not cover the inlet of the Calibration Kit, neither the outlet of the air sampler.
- The explanations and pictures are for Spin Air Master, but are also valid for Spin Air Basic and Basic Air, except the first step that shall be obviated.

- To adjust a Spin Air Mate unit, connect it to the Master unit before entering the calibration menu and extra options will be displayed: “Slv. Adj. 100l/m”, “Slv. Adj. 60l/m”, and “Rst.Slv.Cal.Data”.

3.3. Adjustment procedure

1- Set the date and time of the Spin Air, if necessary.

2- Switch off the Spin Air and connect it to the mains feeder.

ATTENTION: Wait until the battery is fully charged.

3- Place a sample dish inside the Spin Air and the proper lid.

4- Connect the Calibration Kit’s tube to its data logger terminal and switch it on.

5- The units of the terminal reading should be set to ‘KM/H’.

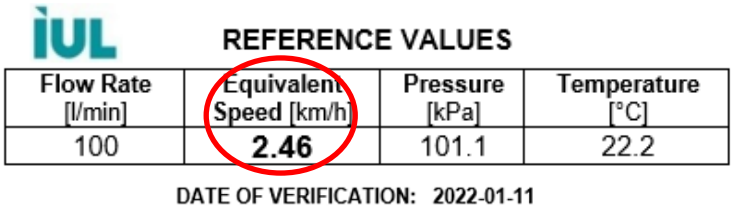
6- Place the Calibration Kit's tube in the lid of the Spin Air with its label on the same side as the Spin Air screen. Push it down to ensure fitting. The tube fits internally to 90mm Petri dishes lids.

7- With the air sampler switched off and its charger still plugged, press ↑ and ✓ together. When the firmware version appears on the screen, loose ↑ and maintain pressed ✓ more than 3 seconds. Then, loose ✓ and you should enter the Spin Air calibration menu.

8- Select the option "Mst. Adj. 100l/m" to adjust according to the 90mm Petri dishes lid, using ▲ and ▼.

9- Press ✓ and follow the instructions on the screen. Next, the air sampler will start sucking up, then wait at least 60 seconds to stabilize the readout of the Calibration Kit.

10- Press ▲ or ▼ to move up/down the calibration parameter, until the Calibration Kit reads a stable value equal to the value indicated on the field “Equivalent Speed [km/h]” of the label attached to its laminar flow tube.



REFERENCE VALUES

Flow Rate [l/min]	Equivalent Speed [km/h]	Pressure [kPa]	Temperature [°C]
100	**2.46**	101.1	22.2

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11- Once the readout in the Calibration Kit is stable and as close as possible to the label value, press ✓ and wait until the Spin Air stores calibration parameters.

12- Use ▲ and ▼ to select “Rst.Mst.Cal.Data” and press ✓ to save the new calibration data. The Spin Air will be calibrated for 2 years, or for 1 million liters of sampling.

NOTE: If you want to adjust a Mate unit, connect it to the Master unit before entering the calibration menu and you will find the “Slv. Adj. 100l/m”, and “Rst.Slv.Cal.Data” options.

4. MAINTENANCE

4.1. Carriage and storage

Use always its original suitcase to transport the Calibration Kit. Always use the Calibration Kit's original suitcase when transporting.

To store the Calibration Kit use also the original suitcase, and place it in an environment with the following conditions:

- Temperature: from -20 to 70°C
- Relative humidity: from 10 to 95% without condensation

The three batteries of the terminal should be removed when the kit is not used for a long period of time.

4.2. Calibration Kit adjustment

It is recommended to verify the Calibration Kit every year. To do so, the Calibration Kit must be sent to IUL SA headquarters, where a proper adjustment will be done and the reference label will be renewed.

4.3. Technical Service

For technical assistance, contact to IUL SA Technical Service Department:
support@iul-inst.com

APPENDIX A: WARRANTY

The IUL SA instrument has a 12-month warranty period.

The warranty is void when misuse of the equipment can be proved. Damage or faults caused by impacts, chemical or corrosive products, liquids, damp, or other external factors, such as radiation, fire, or inadequate transport are not included.

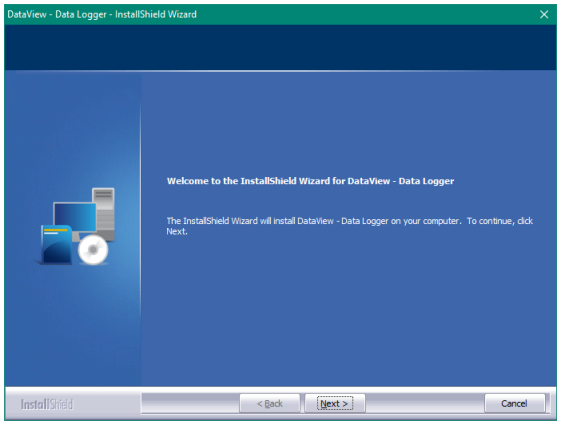
In addition, the warranty will not apply if the equipment has been handled, repaired, or modified by not qualified or specifically designated personnel.

As part of this warranty, all shipping costs to the selected technical service are the responsibility of the Buyer.

APPENDIX B: DATA LOGGER INSTRUCTIONS

Step 1: Data logger software installation

1-



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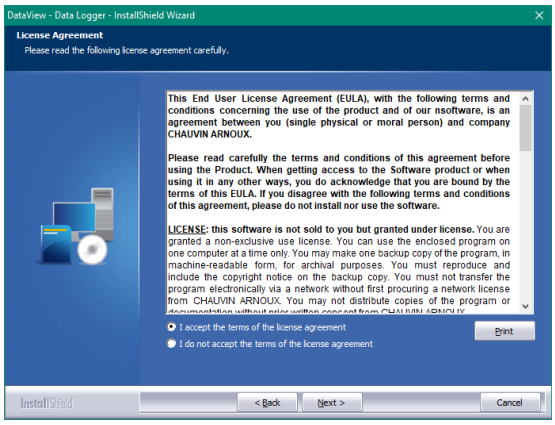

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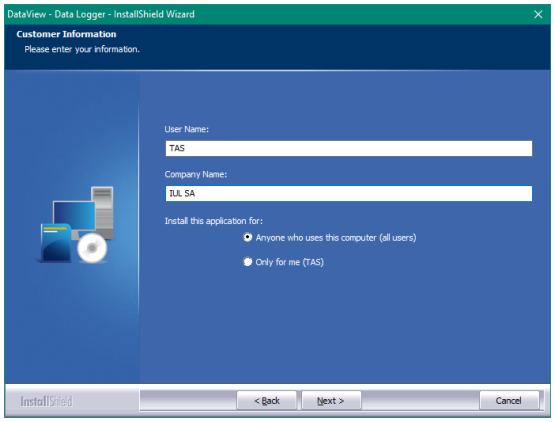

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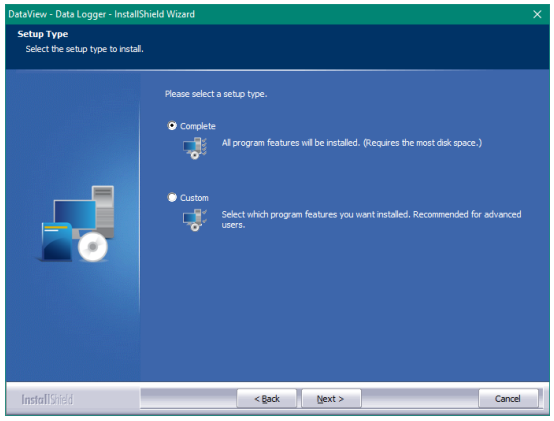

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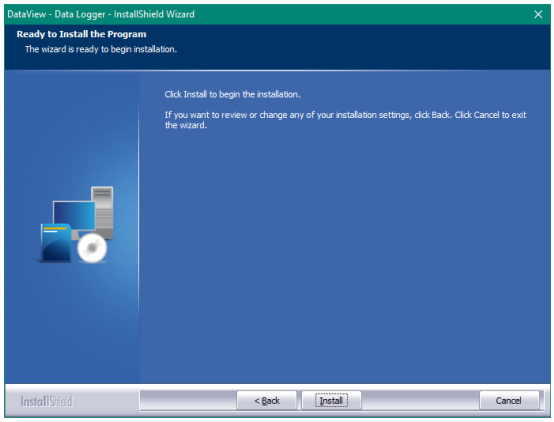
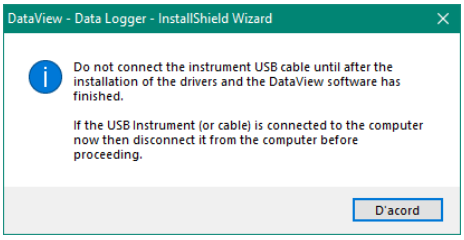
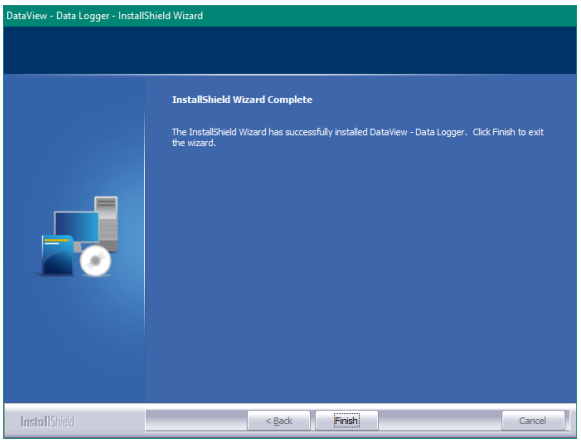


6-

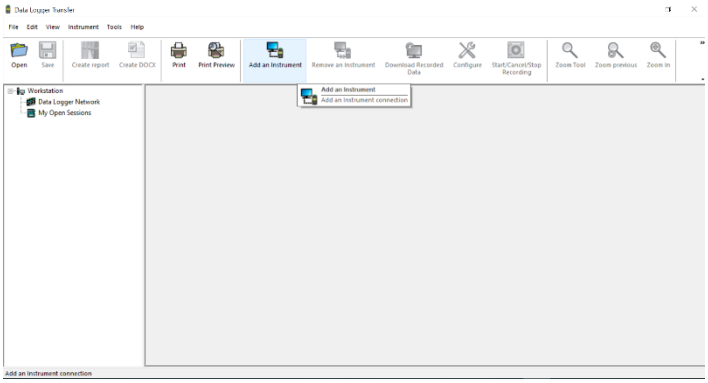


7-

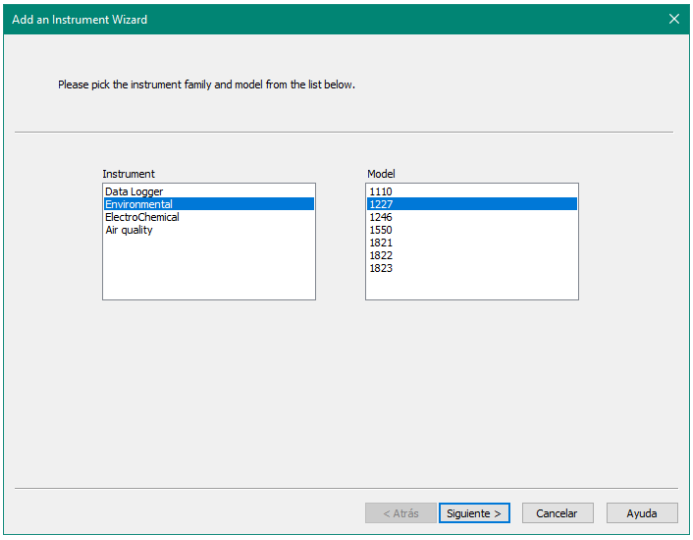


Step 2: Data logger connection

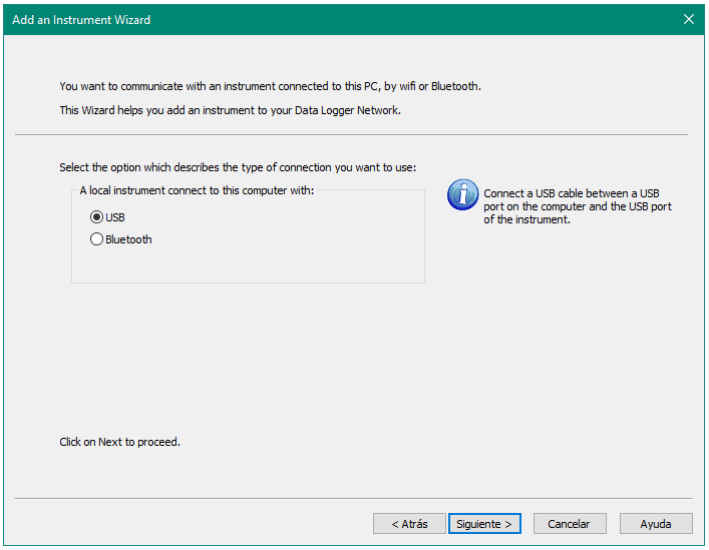
- Click on the “Add an Instrument” button.



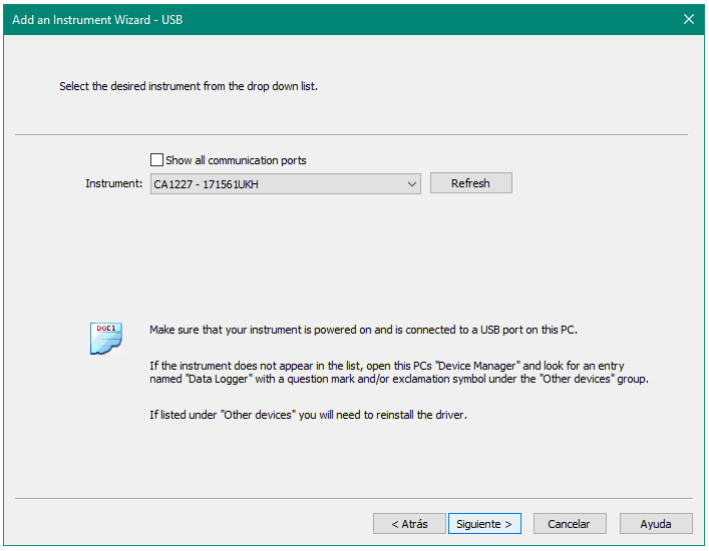
- Select the “Environmental” and “1227” model, and click on Next to proceed.



- Select the USB option and click on Next to proceed.



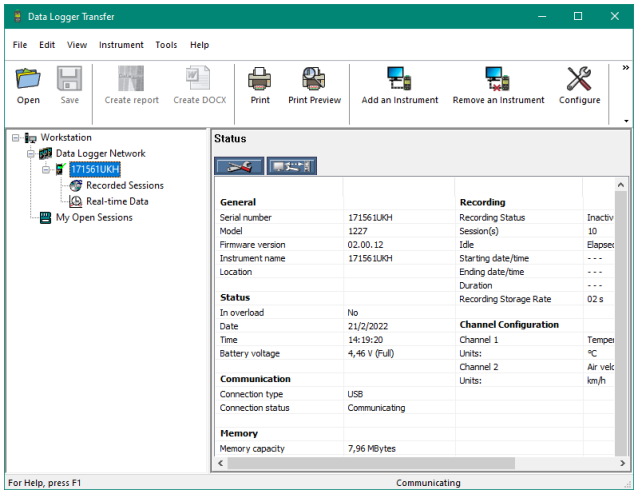
- Select the unique port available “CA1227 – XXXXXXXXX” and click on Next to proceed.



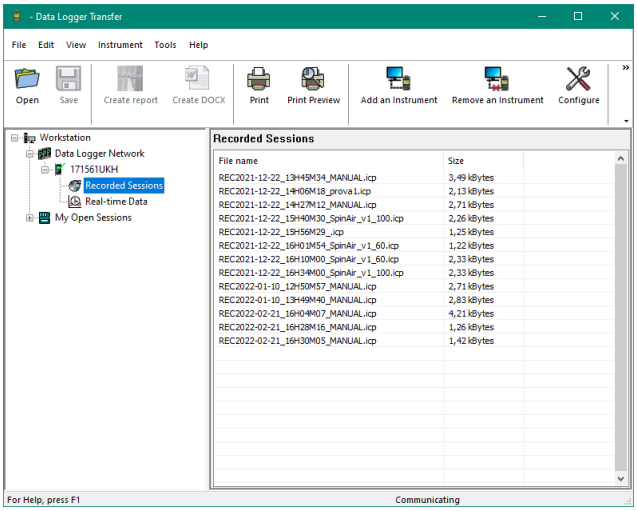
- Click on Finalize button.

Step 3: Session recording

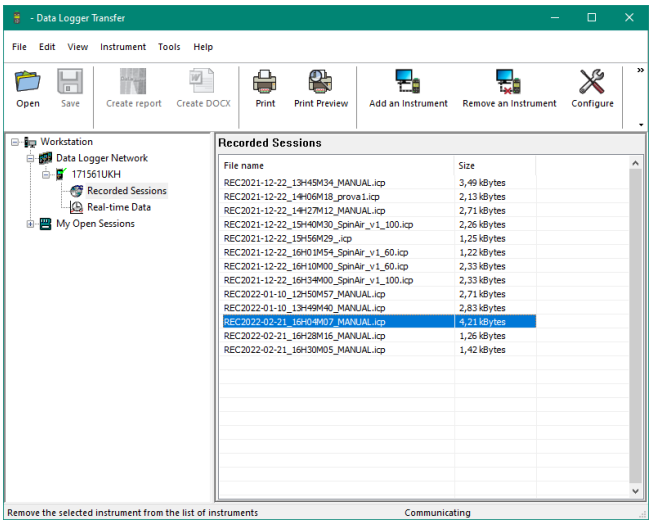
- Select the device and press on the show-more icon.



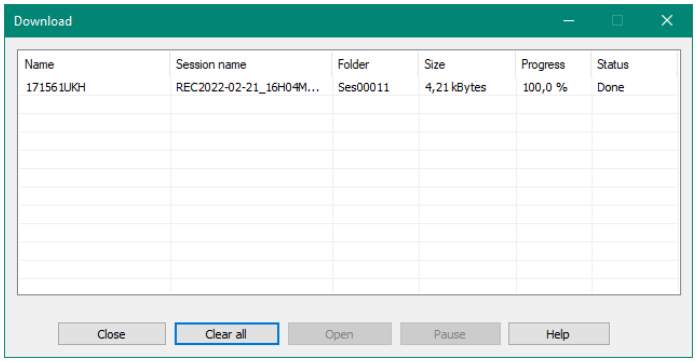
- Select ‘Recorded Sessions’



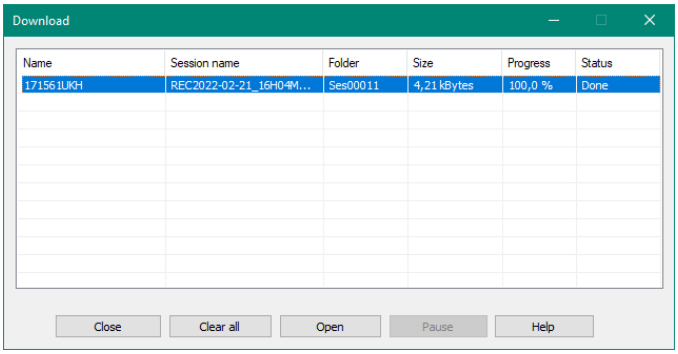
- Double-click on the proper registry.



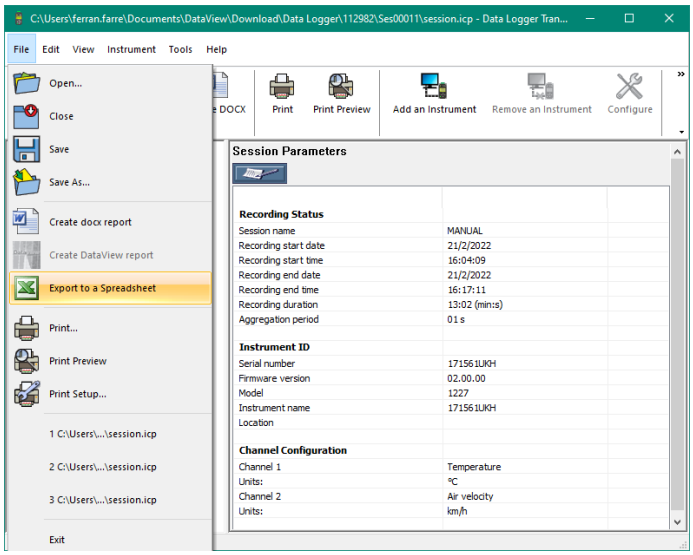
- A new window is displayed, wait until the registry is downloaded.



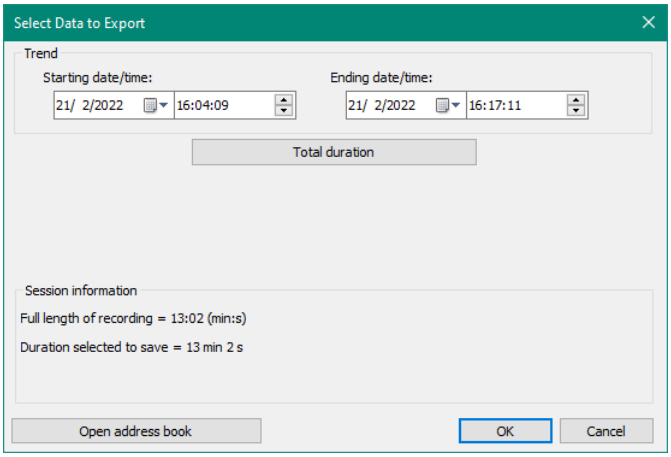
- Select the registry and press the ‘Open’ button.



- On the upper menu, select ‘File’ and then ‘Export to a Spreadsheet’.



- On the new window, set an appropriate ‘Starting date/time’ and/or ‘Ending date/time’ to get the desired time in the ‘Session information’ panel. Then press the ‘OK’ button.



- Select a folder to export the spreadsheet, set it an appropriate name, and save it. Then, open the new file and go to the sheet named ‘Summary’ to find sampled values:

‘Configuration’ sheet:

Configuration
Data Logger Transfer, Version 2.2.216

Recording Status	
Session name	MANUAL
Recording start date	21/2/2022
Recording start time	16:04:09
Recording end date	21/2/2022
Recording end time	16:17:11
Recording duration	13:02 (min:s)
Aggregation period	01 s
Instrument ID	
Serial number	171561UKH
Firmware version	02.00.00
Model	1227
Instrument name	171561UKH
Location	
Channel Configuration	
Channel 1	Temperature
Units:	°C
Channel 2	Air velocity
Units:	km/h

Site Info

‘Summary’ sheet:

Summary

Date:	Time:	Channel T1 (°C)	Channel V1 (km/h)
21/2/2022	16:04:09	23,6	1,32
21/2/2022	16:04:10	23,6	1,33
21/2/2022	16:04:11	23,6	1,33
21/2/2022	16:04:12	23,6	1,34
21/2/2022	16:04:13	23,6	1,34
21/2/2022	16:04:14	23,6	1,35
21/2/2022	16:04:15	23,6	1,35
21/2/2022	16:04:16	23,6	1,35
21/2/2022	16:04:17	23,6	1,35
21/2/2022	16:04:18	23,6	1,35
21/2/2022	16:04:19	23,6	1,35
21/2/2022	16:04:20	23,6	1,35
21/2/2022	16:04:21	23,6	1,35
21/2/2022	16:04:22	23,6	1,35
21/2/2022	16:04:23	23,6	1,35
21/2/2022	16:04:24	23,6	1,36
21/2/2022	16:04:25	23,6	1,36
21/2/2022	16:04:26	23,6	1,35
21/2/2022	16:04:27	23,6	1,35
21/2/2022	16:04:28	23,6	1,35
21/2/2022	16:04:29	23,6	1,35
21/2/2022	16:04:30	23,6	1,35
21/2/2022	16:04:31	23,6	1,35
21/2/2022	16:04:32	23,6	1,34

www.iul-instruments.com

C/ Ciutat d'Asunción, 4
08030 Barcelona (SPAIN)

Phone +34932740232
sales@iul-inst.com