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Microflow α

MICROBIOLOGICAL AIR SAMPLER

Microflow α 60

Microflow α 90-C

Microflow α 60/90-C

Index

USER DESTINATION

Airborne bio-pollutants sampler

MANUFACTURER and TECHNICAL ASSISTANCE

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GENERAL INFORMATION

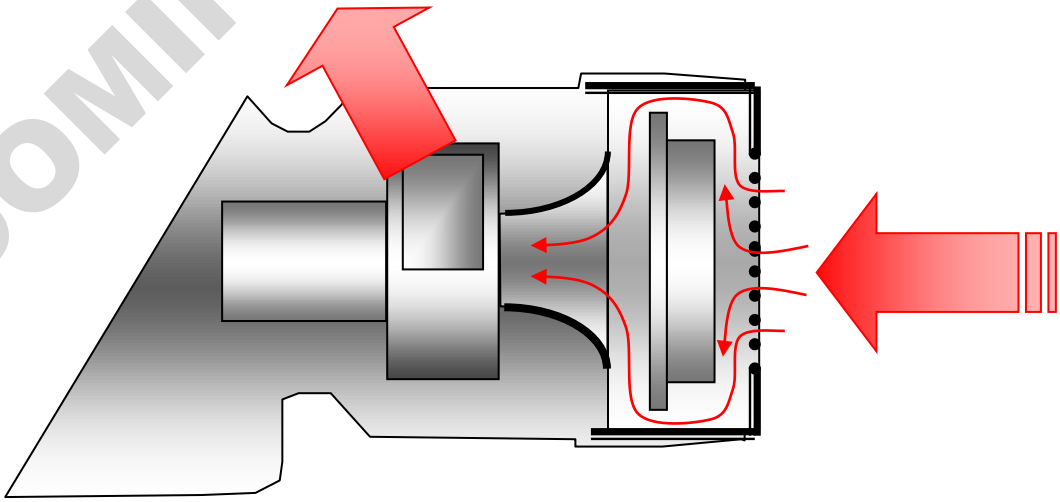
This instrument has been developed for airborne biological contaminants sampling in order to access the level of bio-contamination in critical places (e.g.: clean rooms, operating rooms, pharmaceutical production plants, food and cosmetic industries, water purification plants, landfills, etc.) and in normal working life situations and not (air conditioning and ventilation controls).

MICROFLOW α allows a wide range of airborne bio-contaminant sampling by impacting on agar plates (60 mm ± 2 mm contact plate or 90 mm ± 2 mm Petri dish).

The instrument complies with the recommendations indicated in the **Method UNICHIM n° 1962-2/2016** regarding the determination of microbiological contamination of air in the workplaces by active samplers with orthogonal impact and with **ISPESL guidelines** for sampling regarding sequential samplings in operating rooms.

Working principle

The sampling air is drawn through a perforated head, at constant velocity and for a period of time depending on the condition of the area to be controlled. The inflow air impacts on the surface of the culture media, chosen on the basis of the microbiological investigation to be carried out. At the end of the sampling period the plate is removed and placed into an incubator. At the end of the incubation period it is possible to count the number of colonies developed per cm2 (CFU / cm2) and extrapolate the data to the volume in cubic meters expressed



UNIT DESCRIPTION

Case content

MICROFLOW α kit includes:

- Carrying case
- Microbiological sampler "Microflow α"
- Battery charger
- IR remot control
- Pencil torch
- Additional 60 mm aluminium sampling head (for ***Microflow 60 kit, cod. G.1004***)
  Additional 90 mm aluminium sampling head (for ***Microflow 90-C kit, cod. G.1015***)
  60 or 90 mm aluminium head assembly (for ***Microflow 60/90-C kit, cod. G.1027***)
- Base for sampler vertical positioning
- English user manual
- Calibration Report
- Warranty card

Main features

- Used with: 60 ± 2 mm contact plates (*Microflow α 60*)
  90 ± 2 mm Petri dish (*Microflow α 90*)
  Both with contact and Petri dish (Microflow α 60/90-C)
- NI-Mh rechargeable battery, without memory effect
- Silent microprocessor controlled fan to ensure maximum reliability on the sampled air volume
- Compensation airflow system (in compensated models)
- Low battery control and alarm
- User friendly. Prompts in 5 languages: English, French, German, Spanish, Italian. All functions are “step-by-step” visualised
- Delay start
- Total volume of sampled air programmable from 1 up to 2000 litres, with 1 litre steps
- Manual sampling for air volumes greater than 2000 litres
- Sequential sampling also as required by **ISPESL guidelines**
- Storing and displayed up to 99 samplings, with record of progressive number, date, hour, sampling volume or time, flow rate, type of sampling (manual, sequential, programmable).
- USB port to download data to a PC (optional)
- Calibration control function (with optional calibration kit)
- Remote switch with infra-red rays control
- Vertical or horizontal sampling (90° and 180°)
- Prepared for mounting on photographic tripod

Technical data

Dimensions:	310 x 130 x 170 mm (W x D x H)
Weight:	1,9 Kg
Chassis:	disinfectable polyurethane, joint-free,
Sampling Head:	
60 mm:	autoclavable anodised aluminium, with 219 holes (Ø 1 mm)
90 mm:	autoclavable anodised aluminium, with 380 holes (Ø 1 mm
Plate support:	autoclavable anodised aluminium for plate with nominal diameter of 60 mm and 90 mm (adaptable to ±2 mm).)

Flow rates: 30 – 60 – 90 - 100 -120 l/min
Sampled Air Volume: 1 - 2000 litres (and more with sampling manual)

Control pannel

Fig. 1 – Control pannel

- **Display**
  High contrast graphic display matrix

- **Battery charger connector**

- infra-red sensor **Remote control**

- **ON/OFF button**
  This is the power switch.
  Put in the ON position to power the unit.
  Place on OFF at the end of the use to save the battery charge.

- **Prog** ; **Set** ; **Up** ; **Down** ; **Start** / **Stop** ; **Clear** ; **Enter**
  Programming and operating multifunctional keys

- **Data Output**
  USB port to transfer on the PC the stored data (the port is always present but you need to buy the optional software linked to download and manage data in PC)

OPERATIVE INSTRUCTIONS

Operation conditions

Microflow sampler needs to be used in the following operating conditions:

- Temperature: 0 – 50°C
- Umidity: 20 – 80% HR

Preparing the unit

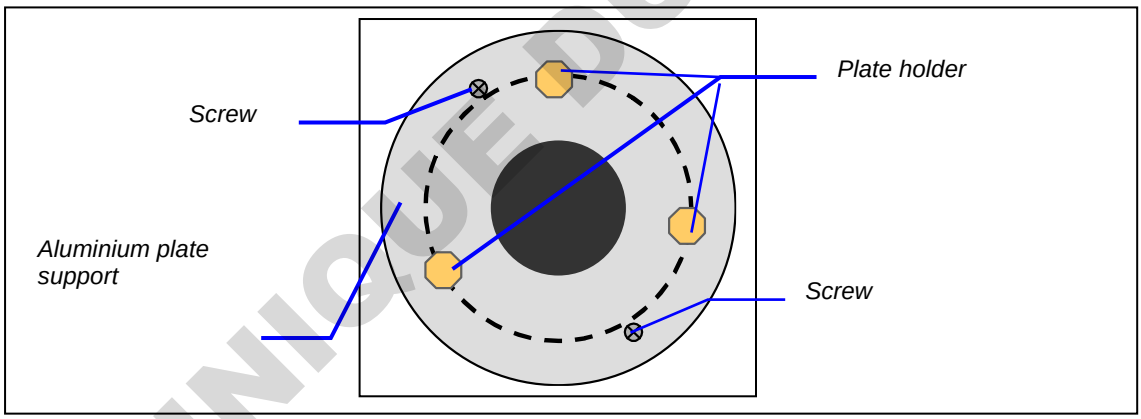
Before to start the sampling, MICROFLOW α must be disinfected, programmed, loaded with an agar plate and put on a plane surface or on a suitable photographic tripod using the appropriate threaded insert.

WARNING: ***don't screw too hard the tripod to avoid damage on the threaded insert***

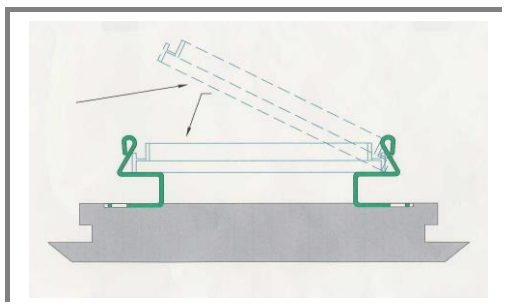
MICROFLOW α, thanks to spring steel flexible support-plate, allows to operate with plates with nominal diameter of 60 mm (+ 2 mm) or 90 mm (+ 2 mm) depending on the mechanical group chosen. To change the mechanical group simply unscrew the two screws placed on the support plates.

Disinfect properly aluminum plates support prior to sampling.

WARNING: ***If you use the pencil torch unscrew the support plates and remove it from the body of the Microflow α in order to avoid damage to the chassie and the fan motor.***



Placing the plate



Wear sterile gloves. Remove the sampling head rotating clockwise, handling with care to avoid any contamination of its surfaces. Deposit the head on a clean surface and covered with a sterile gauze.

Disinfect the aluminium plate support with a suitable disinfectant, avoiding liquid spillage inside the instrument.

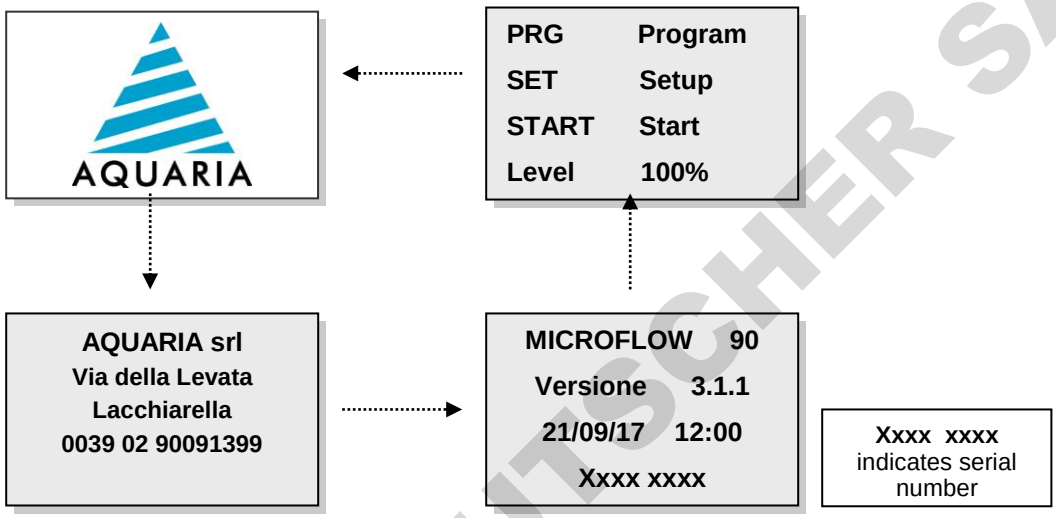
Place a sterile filled plate on one of the three flexible supports. Press gently in outer direction and lay the plate on the two other supports (see figure). Remove the cover plate and put it in a place protected from contamination

Close the sampling sterile unit (or flamed with the accessory provided in the kit) screwing clockwise.

Sampling program setting

Switch on the unit by pressing **[On/Off]** button.

On the display will appear sequentially the following **start information:**



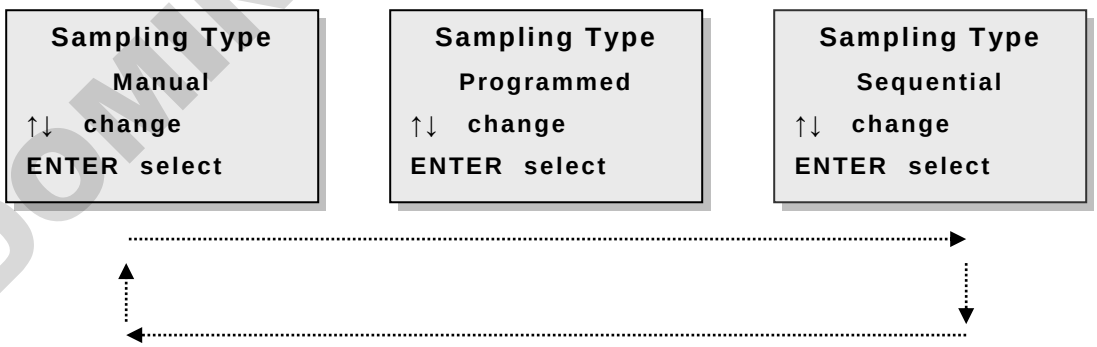
NOTE: In the second screen instead of Aquaria's address it is likely to occur the customer's address

Function: "Sampling"

Press **[Start]** key to start a sampling using the ***last stored parameters***.

Press **[Prog]** key ***to enter a new sampling program.***

Press **[Up**] and **[Down]** key to display the following screenshots:

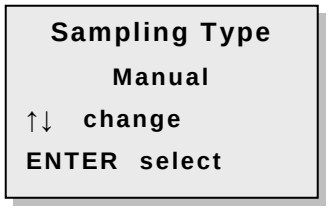


When the needed sampling is shown, press **[Enter]**.

Manual sampling

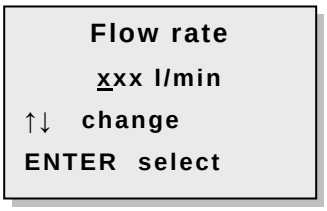
The operator can carry out sampling with timings or volumes different from the pre-set ones by manual instrument control

To program a manual sampling, view on display:



and press **[Enter]** to accept.

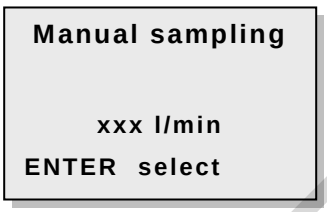
It will appear :



Where:
xxx = the last selected flow rate.

If the flow rate is correct, press [Enter]. If not, select the needed flow rate using the **[Up]** and **[Down]** keys.
When the flow rate needed is displayed press **[Enter].**

It will appear:

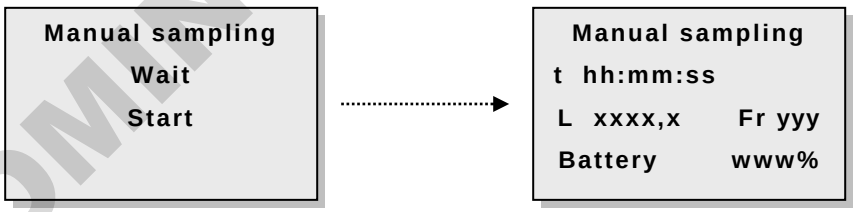


Where:
Manual Sampampling = manual sampling selected
xx x = flow rate selected

If it is necessary to change some data, press the **[Clear]** key and the first display of Manual sampling will appear.

If the programmed data sampling are correct, press **[Enter]:** it will appear the sequence of the three initial displays.

Press **[Start]** key to start the sampling. The two red LED will switch on and, on the display, it will appear:

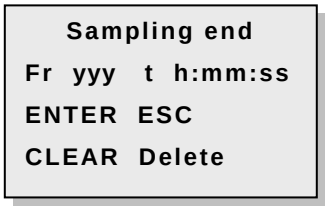


Where:

T = sampling time in **hour:minutes:seconds** (during sampling you will see an increase in the elapsed time)
L = sampling **litres** (during sampling you will see an increase in the volume of air sampled)
Fr = **selected flow** rate in lt/min

Press **[Stop]** key to end the sampling.

The instrument will start to sound a beep, the red LEDs will flash and the following message appears:



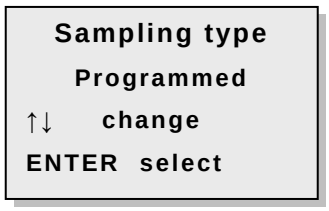
The beep will continue to sound intermittently until the **[Enter]** or **[Clear**] key is pressed

N.B. Pressing **[Enter]** the sampling will be stored. Pressing **[Clear]** the sampling will NOT be stored

Pressed the keys, the LEDs will turn off, will appear "*please wait*" and then the initial screenshots will appear.

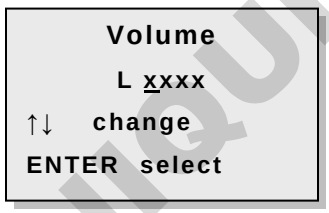
Programmed sampling

To run a programmed sampling, once the display shows:



Press **[Enter]** to accept.

It will appear:



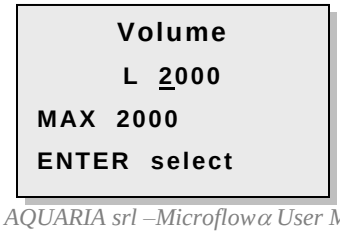
where
Xxxx = the last selected volume.

If the volume is correct, press **[Enter]**. If not, select the needed volume using the **[Up]** and **[Down]** keys, to increase or decrease the value, and the **[Set]** key to move the cursor.

When the needed volume is displayed, press **[Enter].**

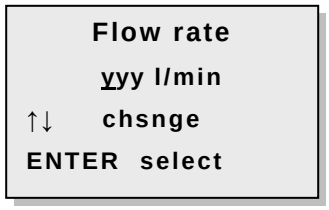
WARNING: ***"Programmed " mode allows to sample an air volume between 1 and 2000 Lt. To sample greater air volumes it is necessary to work in "Manual" mode.***

If you set a volume greater than 2000 liters, for a few seconds the following screen will appear



It will be memorized a sampling volume of 2000 liters.

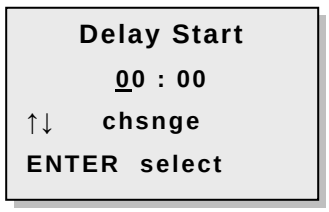
It will appear:



Where: **yyy** = the last flow rate selected.

If the flow rate is correct, press **[Enter]**. If not, select the needed flow rate using the **[Up]** and **[Down]** keys. When the needed flow rate is displayed, press **[Enter].**

It will appear:



Set the needed delay using the **[Up]** and **[Down]** keys, to increase or decrease the value, and the **[Set]** key to move the cursor.
When the delay needed is displayed, press **[Enter].**

WARNING: ***Set EXACTLY how many hour and minutes from the beginning of the sampling.***

If the delay start is not needed, leave 00:00

After the **[Enter]** key has been pressed, all the parameters will be displayed (Volume, Flow rate, the eventual delay start and sampling time calculated by volume and flow rate set)

Where:

yyy	=	set flow rate (L/min.)
vvvvv	=	sampling volume (Litres)
Ds 00:00	=	delay start in hours and minutes
t mm:ss	=	minutes and seconds of sampling

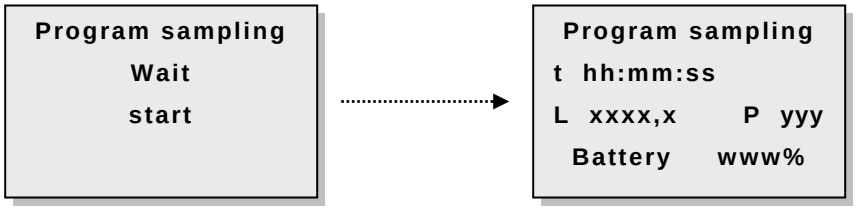
If the set data are correct, press **[Enter]** to save the program. The sequence of the first displays will appear.

If it is necessary to change one or more data, press the **[Clear]** key and it will be shown the initial display with the programmed sampling settings. Press the **[Enter]** key up to the parameter that it is necessary to change. Modify the parameter and press **[Enter]** to save the setting.
Then return to the screen with list of data set by repeatedly pressing the **[Enter]** and accept all the programming by pressing [**Enter]**.

The three initial displays will appear and the Microflow α is ready for the sampling. Press **[Start]** key to start the sampling.

a) **Delay start not active**:

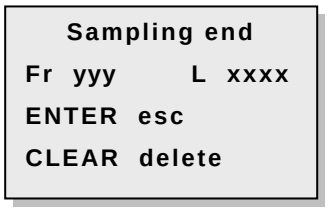
Press **[Start]** to sample. The two red LED will brighten and, on the display, will be shown:



Where:

t = sampling time in hours: minutes: seconds (during sampling you will see the cowntdown of the set time)
L = sampling ***liters*** (it will see an increase in the volume of air sampled)
P = ***flow rate se*** in liters/min

At the end of the sampling will begin to emit a beep sound, the red LED will begin to flash and the following message appears:



Where:
Fr is the selected flow rate
L indicates the air liters sampled

The beep will continue to sound intermittently until the **[Enter]** or **[Clear**] key is pressed

N.B.	Pressing **[Enter]** the sampling will be stored. Pressing **[Clear]** the sampling will NOT be stored

Pressed the keys, the LEDs will turn off, will appear "*please wait*" and then the initial screenshots will appear.

b) **Delay start activated**:

After programming e pressing **[Start]**, the two red LED will lighten and, on the display, will be shown:

Where the countdown shows the hours / minutes / seconds missing at the beginning of the sampling.

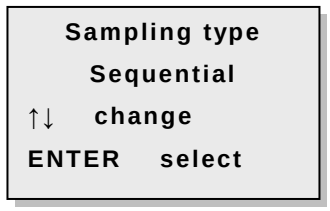
At the end of the delay start the LED will brighten and, on the display, will be shown:

- Program sampling
- Countdown to the end of sampling
- Increase liters sampled
- Flow rate set

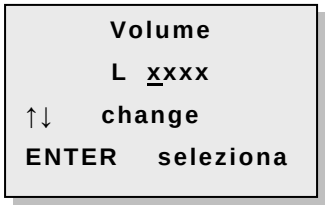
At the end of the sampling period the instrument will operate as already indicated for the programmed sampling without Delay Start

Sequential sampling

To carry out a sequential sampling, press [**Enter]** after seeing on display:



It will appear:



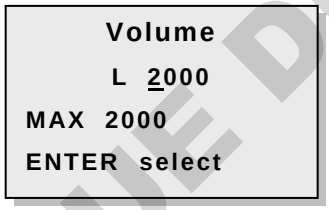
Dove
xxxx = ultimo volume selezionato.

If the volume is correct, press **[Enter]**. If not, select the needed volume using the **[Up]** and **[Down]** keys, to increase or decrease the value, and the **[Set]** key to move the cursor.

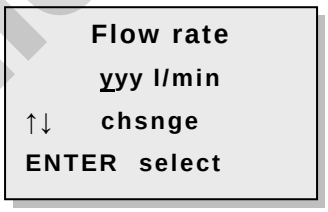
When the needed volume is displayed, press **[Enter].**

WARNING: ***"Programmed Seq " mode allows to sample ONLY an air volume between 1 and 2000 Lt.***

If you set a volume greater than 2000 liters, for a few seconds the following screen will appear



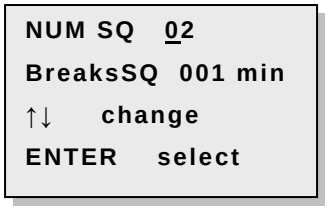
It will be memorized a sampling volume of 2000 liters.
It will appear:



Where:
yyy = the last flow rate selected.

If the flow rate is correct, press **[Enter]**. If not, select the needed flow rate using the **[Up]** and **[Down]** keys. When the needed flow rate is displayed, press **[Enter].**

It will appear:



where:

NUM SQ = number of sequential samplings
BreaksSQ = break in minutes between two samplings

Set the needed data using the **[Up]** and **[Down]** keys to increase or decrease the value, the**[Set]** key to move the cursor and [Enter] to move from the first to the second line

WARNING: ***You can set from 1 to 99 sampling cycles.***
The time interval between samplings is between 1 and 120 minutes (2 hours). If a larger range is set, the 120 minute interval value will automatically be stored

When the needed sequence is displayed press **[Enter].**

It will appear:

```
    Delay Start
      00 : 00
↑↓   change
ENTER   select
```

Set the needed delay using the **[Up]** and **[Down]** keys, to increase or decrease the value, and the **[Set]** key to move the cursor.
When the delay needed is displayed, press **[Enter].**

WARNING: ***Set EXACTLY how many hour and minutes from the beginning of the sampling.***

If the delay start is not needed, leave 00:00

After the **[Enter]** key has been pressed, all the parameters will be displayed (Volume, Flow rate, the eventual delay start and sampling time calculated by volume and flow rate set)

```
Fr  yyy l/min
V  vvvv
Ds 00:00   t mm:ss
Nseq nn     Bseq
```

Where:

yyy	=	set flow rate (L/min.)
vvvvv	=	sampling volume (Litres)
Ds 00:00	=	delay start in hours and minutes
t mm:ss	=	minutes and seconds of sampling
Nseq nn	=	number of sequences set
Bseq sss	=	break in seconds between a sampling and the following

If the set data are correct, press **[Enter]** to save the program. The sequence of the first displays will appear.

If it is necessary to change one or more data, press the **[Clear]** key and it will be shown the initial display with the programmed sampling settings. Press the **[Enter]** key up to the parameter that it is necessary to change. Modify the parameter and press **[Enter]** to save the setting.
Press **[Enter]** up to the summing up screen and save the set parameters pressing the **[Enter]** key

The sequence of the first displays will appear and the unit is ready for the sampling.

Press **[Start]** and the Microflow α will start the sampling as shown for the programmed sampling, with the following screenshots

During sampling:

Sequen. sampling	
t hh:mm:ss	
L xxxx	Sq 01/NN
Battery	www%

Where:

t	=	countdown hours/minutes/seconds to end sampling
L	=	air sampling volume (Litres increasing)
Sq	=	sampling number on the cycles number set (es : 01/02 says that we are doing the first sampling of two)

In this moment the LED are switch on.

During the interval between a sampling and the next in the same sequence:

Sequen. sampling
t hh:mm:ss
Next sampling
Sq 02/NN

Where a countdown will indicate the hours/minutes/seconds before the beginning of the next sample

In this moment the LED are flashing.

During the second sampling:

Sequen. sampling	
t hh:mm:ss	
L xxxx	Sq 02/NN
Battery	www%

Where the screen is identical to that of the first sampling but only the indication of the No. corresponding to the sequence varies

In this moment the LED are switch on.

The screens will continue to interleave with the same sequence until the end of the last sampling set. At this point the red LED will begin to flash and the following message appears:

Sampling end	
Fr xxx	Sq 02/02
ENTER	esc
CLEAR	delete

The beep will continue to sound intermittently until the **[Enter]** or **[Clear**] key is pressed

N.B. Pressing **[Enter]** the sampling will be stored.
Pressing **[Clear]** the sampling will NOT be stored

Pressed the keys, the LEDs will turn off, will appear "*please wait*" and then the initial screenshots will appear.

Sampling end

Switch off the Microflow α pressing the **[Off]** key.
Remove the sampling head unscrewing anticlockwise.
Close the plate with the lid, and after the identification, bring it to incubation.
Prepare the unit to the next sampling.

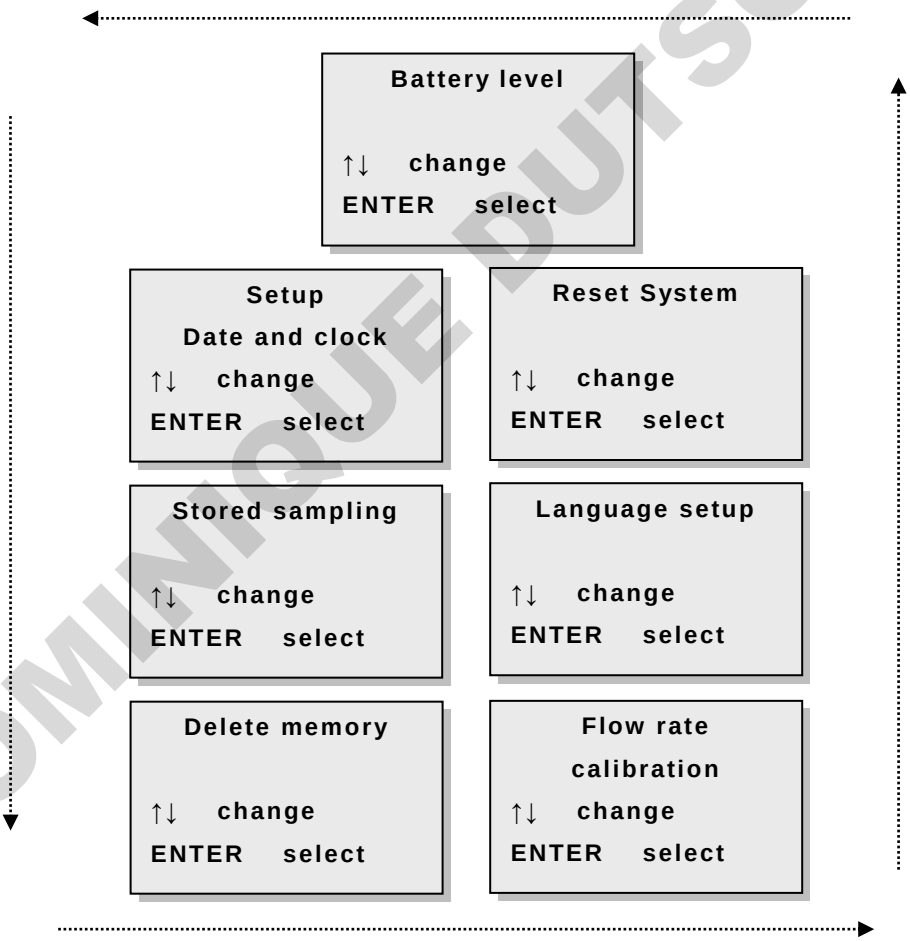
WARNING: ***In order to save energy, after 10 minutes of sampler inactivity, the LCD backlighting system will automatically turn off (only "Stanby" will appear on the display) to immediately turn on pressing the ENTER key.***

OTHER FUNCTIONS

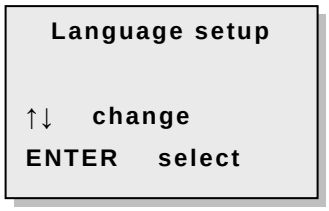
Press **[on/off]** to switch on the instrument.

Press **[Set]** to enter in the setting menu of the MICROFLOW α.

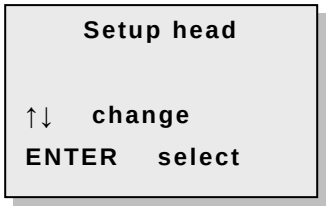
Press the **[Up]** key to scroll the following menus on the Display::



In the ***Microflow α 60/90-C (cod. G.1069)***, and ONLY in this instrument, after the display



It will appear:



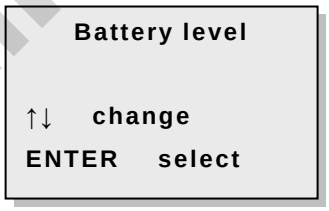
In models in which the optional download data to the PC is enabled, and ONLY in these models, after the display

It will appear:

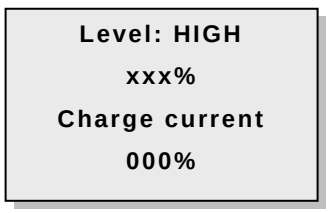
When the required submenu is desplyd, press the **[Enter]** key to accept.

FUNCTION: “Battery level"

Displayed



Press **[Enter]** and **i**t will appear:



Where:

xxx% battery level

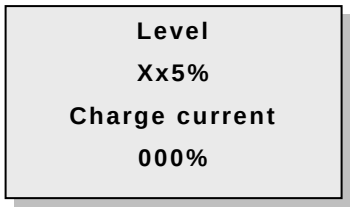
000% means that the instrument isn’t under recharge

Pressing the **[Enter]** key the fun will simultaneously switch on so that the battery percentage is the actual one

The battery level is shown by a number (%) and by the words HIGH, WARNING and LOW .

WARNING word will appear when the level is around 40% and LOW word will appear when the level arrives to 5%.

Shortly after the LOW level appears, the the following alarm signal will be displayed:



At this point all the keys are disabled, the instrument can no longer work and the only possible thing is to turn off the instrument with the **[On / off]**

Press the **[Clear]** key to exit from the *"Battery level*" menu.

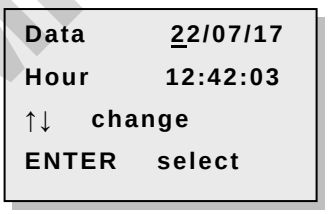
Press again the **[Clear]** key to visualize the first three displays

WARNING: ***When WARNING level is reached, the battery charge decreases very rapidly (eg at 40%, you can sample for no more than 20 minutes).***
Therefore we suggest to recharge the sampler when you reach this level.

FUNCTION: "Setup date and clock"

Displayed:

Press **[Enter]** and it will appear:



Set data and time using the **[Up]** and **[Down]** keys, to increase or decrease the value, and the **[Set]** key to move the cursor.

Press the **[Clear]** key to exit from the *"Setup date and clock"* menu.

Press one time the **[Clear]** key to stay in the Set menu. Press two times the **[Clear]** key to visualize the first three displays.

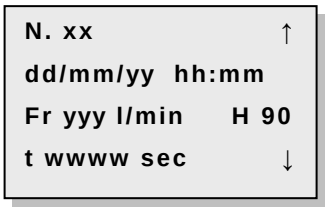
FUNCTION: "Stored samplings"

Displayed:

Press the **[Enter]** key: the sampling progressive sequence will be displayed.

The screen will be different depending on the sampling performed:

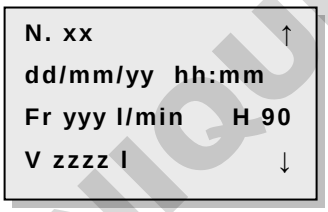
a) **Manual sampling**



Where:

N. xx	= sampling sequential number
dd/mm/yy	= sampling date (day/month/year)
hh:mm	= sampling start time (hour/minute)
Fr = yyy	= flow rate (l/min)
H	= sampling head (it can be indicated either 60 or 90)
t = wwww	= sampling duration (seconds)

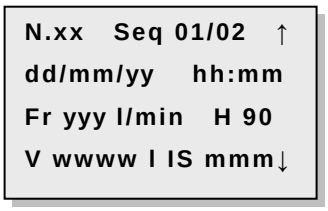
b) **Programmed sampling**

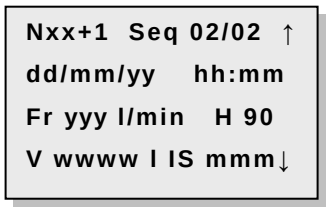


Where:

N. xx	= sampling sequential number
dd/mm/yy	= sampling date (day/month/year)
hh:mm	= start sampling time (hour/minute)
Fr = yyy	= flow rate (l/min)
H	= sampling head (it can be indicated either 60 or 90)
V = zzzz	= sampled volume (litres)

c) **Sequential sampling**





In this case, the sequence sampling will be displayed on so many subsequent screens as are the sampling that has been performed sequentially.

Where:

N°xx	= number of the first sequential sampling
N°xx + 1	= identifies the number of the second sequential sampling (eg. if the first sequential sampling is identified with n°1, the second sequential sampling will be identified with n°2)
dd/mm/yy	= sampling date (day/month/year)
hh:mm	= sampling start time (hour/minute)
Seq	= sequential sampling
01/02	= the first sampling of a sequence of 2 samplings
02/02	= the second sampling of a sequence of 2 samplings
Fr yyy	= flow rate (l/min)
H	= sampling head (it can be indicated either 60 or 90)
V wwww	= sampled volume (litres)
IS	= delay start between sequences of sampling

To switch from one sampling to the next, press the [**Up]** key while pressing the **[Down]** key to switch to the previous sampling

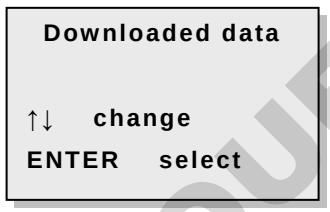
Press the **[Clear]** key to exit from the *"Stored samplings"* menu.

Press one time the **[Clear]** key to stay in the Set menu. Press two times the **[Clear]** key to visualise the first two displays.

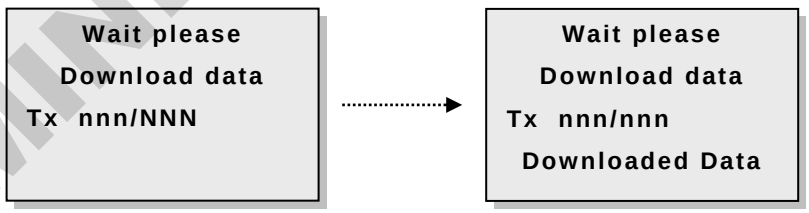
FUNCTION: "Download data on PC"

(only for Microflow α with PC interface is enabled)

Displayed:



Press **[Enter]** and **i**t will appear:



Where **Tx** is the number of sampling that will be downloaded to PC:
NNN is the total number of stored sampling
nnn indicates the sampling number that is downloading to a PC (a progressive increase of nnn until it is equal to NNN will be observed)

Press the **[Clear]** key to exit from the *"Stored samplings"* menu.

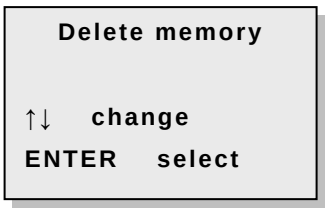
Press one time the **[Clear]** key to stay in the Set menu. Press two times the **[Clear]** key to visualise the first two displays.

NOTE: ***during this step, the Microflow α has to be connected to a PC with the proper cable. We suggest to download only after the connection with the PC.***

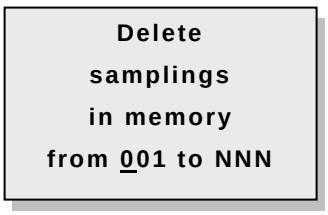
WARNING: ***Every time the download is done, the Microflow α transfer all the data to the PC. We suggest to erase the data stored on the Microflow α after the download.***

FUNCTION: "Delete memory"

Displayed:



Press **[Enter]** and it will appear:



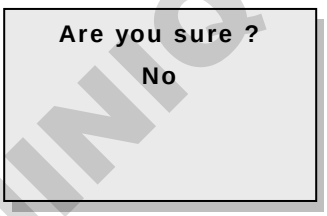
Where:

NNN is the total number of samplings stored in the memory

In this case use the **[Set]** key to move the cursor and the **[Up]** and **[Down]** keys to select the required sampling number. After selecting the first sampling number to be deleted, use the **[Enter]** key to switch to the last sampling number to be deleted.

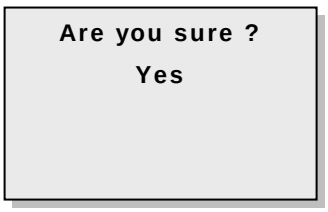
Impostato l'intervallo prescelto premere **[Enter]**. Comparirà:

Set the selected range, press **[Enter].** and it will appear:



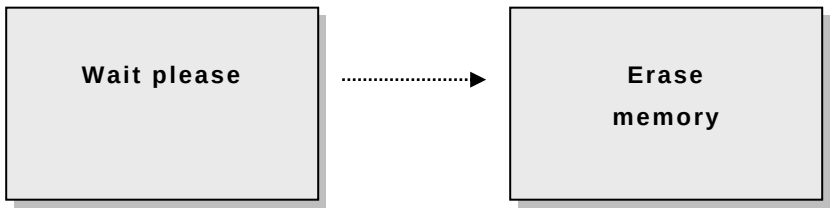
If it is not necessary to delete the stored data press the **[Enter]** key to exit from this menu.

If it is necessary to delete the data press the **[Down]** key and it will appear:



Pressing the **[Enter]** key all the data in the selected range will be erased (if you do not want to erase the data, pressing **[Up]** you will return to the previous screen and you can exit the *"Deleted Data Erase"* menu).

It will appear the following sequence:

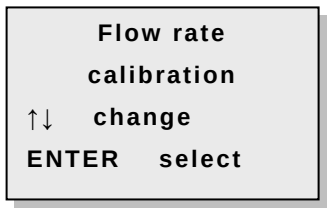


and the instrument automatically returns to the setup menu.

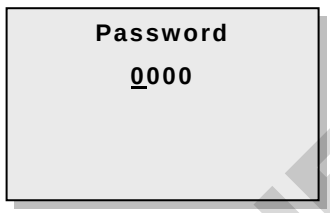
Press the **[Clear]** key to return to the initial screens

FUNCTION: " Flow rate calibration"

Displayed:



Press **[Enter]** and it will appear:



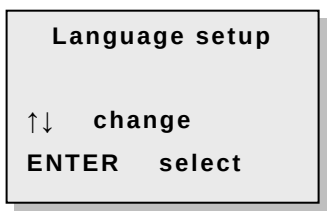
WARNING: ***In order to avoid an undesired deletion of the calibration data, the password will be supplied ONLY to the customers who buy the MICROCONTROL calibration kit.***

Press the **[enter]** key to exit from the *"Flow rate calibration"* menu.

Press the **[Clear]** key to to return to the initial screens

FUNCTION: " Language Setup"

Displayed:



Press **[Enter]** and it will appear:

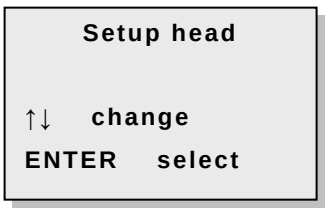
Press the **[Up]** and **[Down]** keys to scroll the available languages (Italian, English, Francais, Deutsch, Espanol).

Press **[Enter]** to confirm. All displayed messages will be now in the selected language

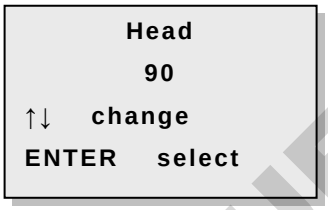
Press the **[Clear]** key to return to the initial screens.

FUNCTION: " Choice sampling head"
(only for Microflow α 60/90-C - cod. G.1027)

Displayed:

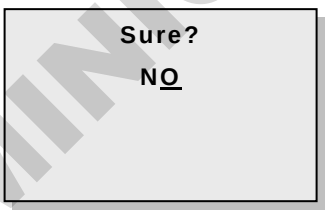


Press **[Enter]** and it will appear:



Press the **[Up]** and **[Down]** keys to scroll the available heads: 60 and 90.

Selected the desired head, press **[Enter]** and the following display will appear:

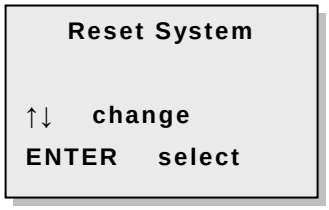


Press the **[Up]** and **[Down]** keys to choose yes or no and confirm with **[Enter]** key.

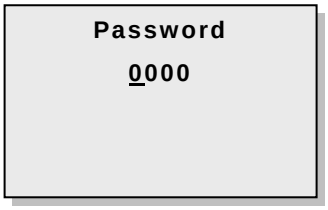
The *"Setup head"* menu will be displayed again. Press the **[Clear]** key to come back to the main menu.

FUNCTION: "Reset system"

Displayed:



Press **[Enter]** and it will appear:



WARNING: ***This menu can be only used by the manufacturer.***

Press the **[enter]** key to exit from the *"Flow rate calibration"* menu.

Press the **[Clear]** key to to return to the initial screens

POWER SUPPLY

The unit is powered by a 8 elements Ni/Mh battery pack (each element: 1,2V) protect against short-circuits and termic overcharges.

NOTE: ***These batteries have no memory effect and can be recharged at any time without damaging the elements***

The chip installed on the instrument avoid to run a sampling if the battery level is not enough to maintain a constant flow rate as long as necessary

Low Battery

a) **Microflow α switch on but not operative**

If the MICROFLOWα has been left switched on, although not operating, the battery level will slowly decrease. If the battery level decrease over the limit "WARNING", it will appear:

b) **Microflow α Operative**

If MICROFLOW α is sampling and during the sampling the battery charge decreases under the WARNING level (and it is not possible to maintain the constant flow rate), the display will show:

Sempling End
Fr xxx T hh:mm:ss
ENTER select
CLEAR esc

Where: **Fr** is the selected flow rate
T is Past sampling time (in hour, minute, second)

Push the button **[Enter**] the sampling will be stored
Push the button **[Clear]** the sampling will not be stored

WARNING: ***The sampling will not be stored on the basis of the setted values but on the basis of the real sampling time***

After pressing the button **[Enter / Clear]** it will appear :

Battery
Level
Very low
WARNING

and it's not possible proceed with other samplings until the instrument will not be charged.

Battery charging

WARNING: ***to avoid any damages to batteries or power adapter we suggest to follow the following sequence:***
- Connect recharger jack to Microflow α
- Connect the charger to the power supply
After the recharge time, disconnect the charger to the power supply then disconnect the jack from the instrument.

The complete recharging time is about 8 hours but it depends on the residual battery charge.

WARNING: ***we recommend to recharge the batteries when the instrument is off. Nevertheless, the instrument can be recharged even if in operation. In this case the charging time could be longer and and the total battery charge is not guaranteed.***

a) **Instrument Off**

The charging of the instrument may be followed by observing the LED on the instrument

LED flash rapid: the instrument is in recharge
LED flash slow : the instrument is fully charged (battery level 100%) and in maintenance phase
LED off : the instrument is fully charged (battery level 100%)

b) **Instrument On**

If the instrument is switched on, but not active, the LED will be switched off and the display will show the word "Battery charging"

WARNING: ***If necessary, the Microflow α can also be used connected to the power supply through the battery charger.***
However, we recommend not to use the sampler connected to the network for long periods to avoid damaging the batteries.

During the recharging, you can enter the set menu and select "level battery charge": on the display it will appear both the charge percentage and the current recharge percentage.
If the charger is connected to the instrument, the battery charge level showed on the display will be 100% (this means that the battery is charging till 100%) while the current recharge will be 100% at the beginning but it will decrease during the battery charge.
If the charger is not connected to the power supply the current recharge will be equal to 0% (any current recharge is issued) and the battery real percentage value will be displayed.

WARNING: ***To avoid the total batteries discharge, under the threshold value, that would cause a very long recharge battery time (also over 10 hours), WE RECOMMEND to recharge the batteries at least once a month even if the instrument has not been used and in any case, to recharge ALWAYS the instrument after using it.***

Battery replacement

To change the batteries, simply unscrew the metal panel at the bottom of the instrument. When lifting the lid, be careful not to disconnect the connection cable to the IR sensor (if it is disconnected, re-add it simply by making sure that the color wires are coincident) and pay attention to that the batteries do not protrude from the battery compartment by tearing the cable (the batteries are simply housed inside the compartment without any fixing).

Disconnect the batteries from the power cord and replace them with the new battery pack.

UNIT DISINFECTION

MICROFLOW α must be cleaned and disinfected after each sampling cycle to avoid cross contamination which could modify the reliability of the sampling.

Switch off the unit.

Clean the surface of MICROFLOW α using a sterile cloth wet with a suitable disinfectant. After drying, the unit is ready for a new sampling cycle.

WARNING: **DON'T SPRAY disinfectant solution directly on the instrument or the keyboard: these solutions could enter inside the instrument and they cause damage as example and oxidation of the circuits.**

AQUARIA will not recognize the warranty caused of unsuitable disinfectant solution.

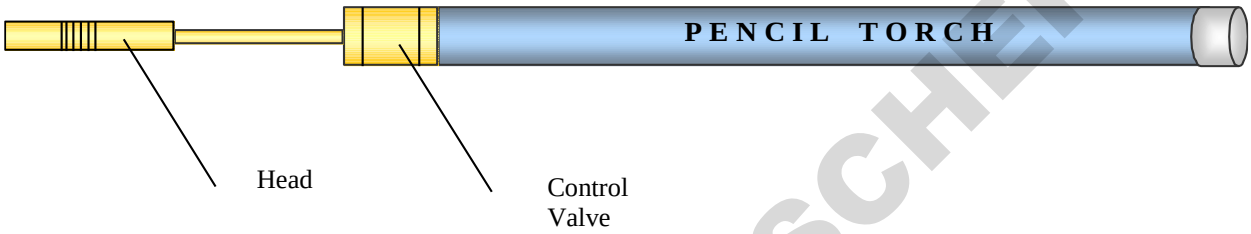
The sampling head and the support plate can be sterilized in autoclave, following the standard procedure of sterilisation (i.e. 120 °C, 18 minutes).

Between two samplings is necessary to disinfect the sampling head with pencil torch supplied with the starting kit. In the absence of this, it is possible to use a sterile cloth with disinfectant over this. It is very important to avoid the liquid penetration inside the instrument.

Let dry at room temperature. After drying the sampling head is ready to be used.

Sampling head fire disinfecting

The MICROFLOW kit is equipped with a pencil to disinfect the head. Disinfect always the head between two samplings to avoid a cross-contamination.



To switch on the pencil torch rotate clockwise the control-valve. When the gas goes out from the head, bring the fire to light the pencil.

WARNING: Pass quickly the fire on the interior part of the sampling head.
Do not stop the fire on a specific point of the head, it can be damaged.

To switch off the pencil torch rotate counter-clockwise the control-valve.

To recharge the pencil torch it is possible to use the Butan gas used for cigarette-lighters.

Before to recharge the pencil torch be sure it is switched off. The complete recharge needs about 10 seconds. It is necessary to wait some minutes so that the gas is stable.

For correct recharging it is recommended to keep horizontal the pencil torch and the and the recharge cartridge

MAINTENANCE

All operations shall be performed by qualified personnel only!

There are no parts replaceable by the user himself. In case of problems please call your dealer for service.

In the event of problems or malfunctions contact your dealer or AQUARIA technical service.

WARNING: It is recommended to calibrate the instrument at least once a year

For further information please contact

AQUARIA S.R.L.
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Tel: +39 - 02 90091399
Fax +39 - 02 9054861
E-mail: assistenza@aquariasrl.com

WARRANTY

AQUARIA guarantees the instrumentation for **12 months**

During the warranty period, any faults resulting from defective components by repair or, in the opinion of its technicians, will be eliminated without replacement by the defective component or the whole appliance.
Damage caused by improper use or improper use of the appliance, parts subject to normal wear, defects that do not affect the normal operation of the appliance and consumables (batteries, etc.) are excluded from the warranty.
The warranty is void if repair work is carried out by unauthorized personnel from AQUARIA and when non-original spare parts are used.

The manufacturer of the appliance can not be held liable, in any way, against the customer, the user and / or third parties for damage caused by persons or things (including the same appliance) in connection with the installation, installation and / or operation of the appliance due to:

- Improper execution, according to the rules of good construction technique
- Works or modifications of any kind made on the device, or its accessories, without the prior approval of the manufacturer and / or without its technical direction, even if such work is carried out by employees dependent on the manufacturer without prior authorization.
- Use of the appliance and / or its accessories for purposes other than that for which it was designed, constructed and sold
- Operation of the appliance and / or its accessories with the use of chemicals, and / or temperatures, and / or concentrations other than those specified in the manufacturer's instructions

TROUBLE SHOOTING

Nothing lights up	Verify that: 1. the appliance is switched on 2. the battery is charged 3. If the problem persists, contact technical support.
The engine does not work	contact technical support
The remote does not activate the "START"	Verify that: 1. The remote control battery is charged 2. If the problem persists, contact technical support.
The LCD display does not work properly	contact technical support.
Questions or other abnormal symbols appear on the LCD	contact technical support
Red LEDs do not turn on during sampling	contact technical support
The "LOW BATTERY" or "BATTERY 30%" warning appears with the charged battery	contact technical support
The engine is noisy	To verify: 1. the presence of foreign bodies in the engine fan. 2. If the problem persists, contact Technical Support.
The engine is out of control	1. If anomaly occurs at a single flow rate, correct the relative flow calibration by using the calibration kit. 2. If anomaly occurs at all flow rates, check the calibration of all the flow rates. 3. If the problem persists, contact technical support.
Data can not be set via the membrane keyboard	contact technical support

CONVERSION TABLES Microflow α 60

To correlate the CFUs (Colony Forming Units) present on the agar plate to the most probable number (MPN) of micro-organisms per cubic meter of air sampled, the following formula is used:

$$P_r = F\,[1/F + 1/(F-1) + 1/(F-2) + \ldots + 1/F-(n+1)]$$

Where:
P_r = most probable number of micro-organisms in the volume of air sampled
F = number of holes on Microflow α sampling head
n = number of CFUs on the agar plates after incubation

Table published on UNICHIM method n ° 1962-2, edition 2006

n	P_r	n	P_r	n	P_r	n	P_r	n	P_r	n	P_r	n	P_r	n	P_r
1	1	**30**	32	**59**	69	**88**	112	**117**	167	**146**	240	**175**	349	**204**	580
2	2	**31**	33	**60**	70	**89**	114	**118**	169	**147**	243	**176**	351	**205**	595
3	3	**32**	34	**61**	71	**90**	116	**119**	171	**148**	246	**177**	359	**206**	611
4	4	**33**	36	**62**	73	**91**	117	**120**	173	**149**	249	**178**	365	**207**	627
5	5	**34**	37	**63**	74	**92**	119	**121**	175	**150**	252	**179**	370	**208**	646
6	6	**35**	38	**64**	76	**93**	121	**122**	178	**151**	255	**180**	375	**209**	666
7	7	**36**	39	**65**	77	**94**	122	**123**	180	**152**	258	**181**	381	**210**	688
8	8	**37**	40	**66**	78	**95**	124	**124**	182	**153**	261	**182**	387	**211**	712
9	9	**38**	42	**67**	80	**96**	126	**125**	185	**154**	265	**183**	393	**212**	739
10	10	**39**	43	**68**	81	**97**	128	**126**	187	**155**	268	**184**	399	**213**	771
11	11	**40**	44	**69**	83	**98**	130	**127**	189	**156**	271	**185**	405	**214**	807
12	12	**41**	45	**70**	84	**99**	131	**128**	192	**157**	275	**186**	412	**215**	851
13	13	**42**	46	**71**	86	**100**	133	**129**	194	**158**	278	**187**	416	**216**	906
14	14	**43**	48	**72**	87	**101**	135	**130**	196	**159**	282	**188**	425	**217**	979
15	15	**44**	49	**73**	88	**102**	137	**131**	199	**160**	286	**189**	432	**218**	1088
16	17	**45**	50	**74**	90	**103**	139	**132**	201	**161**	289	**190**	439	**219**	1307
17	18	**46**	51	**75**	92	**104**	141	**133**	204	**162**	293	**191**	447		
18	19	**47**	53	**76**	93	**105**	142	**134**	206	**163**	297	**192**	455		
19	20	**48**	54	**77**	95	**106**	144	**135**	209	**164**	301	**193**	463		
20	21	**49**	55	**78**	96	**107**	146	**136**	212	**165**	305	**194**	471		
21	22	**50**	57	**79**	98	**108**	148	**137**	214	**166**	309	**195**	480		
22	23	**51**	58	**80**	99	**109**	150	**138**	217	**167**	313	**196**	489		
23	24	**52**	59	**81**	101	**110**	152	**139**	220	**168**	317	**197**	499		
24	25	**53**	60	**82**	102	**111**	154	**140**	222	**169**	322	**198**	508		
25	26	**54**	62	**83**	104	**112**	156	**141**	225	**170**	325	**199**	519		
26	28	**55**	63	**84**	106	**113**	158	**142**	228	**171**	331	**200**	530		
27	29	**56**	64	**85**	107	**114**	160	**143**	231	**172**	335	**201**	542		
28	30	**57**	66	**86**	109	**115**	162	**144**	234	**173**	340	**202**	554		
29	31	**58**	67	**87**	110	**116**	165	**145**	237	**174**	344	**203**	567		

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CONVERSION TABLES Microflow α 90

To correlate the CFUs (Colony Forming Units) present on the agar plate to the most probable number (MPN) of micro-organisms per cubic meter of air sampled, the following formula is used:

$$P_r = F\,[1/F + 1/(F-1) + 1/(F-2) + \ldots + 1/F-(n+1)]$$

Where:
P_r = most probable number of micro-organisms in the volume of air sampled
F = number of holes on Microflow α sampling head
n = number of CFUs on the agar plates after incubation

Table published on UNICHIM method n° 1962-2, edition 2006

n	P_r	n	P_r	n	P_r	n	P_r	n	P_r	n	P_r	n	P_r	n	P_r	n	P_r
1	1	**46**	49	**91**	104	**136**	168	**181**	245	**226**	342	**271**	473	**316**	674	**361**	1129
2	2	**47**	50	**92**	105	**137**	170	**182**	247	**227**	345	**272**	477	**317**	680	**362**	1149
3	3	**48**	51	**93**	106	**138**	171	**183**	249	**228**	347	**273**	480	**318**	686	**363**	1170
4	4	**49**	52	**94**	108	**139**	173	**184**	251	**229**	350	**274**	484	**319**	693	**364**	1192
5	5	**50**	54	**95**	109	**140**	174	**185**	253	**230**	352	**275**	487	**320**	699	**365**	1216
6	6	**51**	55	**96**	110	**141**	176	**186**	255	**231**	355	**276**	491	**321**	705	**366**	1242
7	7	**52**	56	**97**	112	**142**	178	**187**	257	**232**	358	**277**	495	**322**	712	**367**	1269
8	8	**53**	57	**98**	113	**143**	179	**188**	259	**233**	360	**278**	498	**323**	718	**368**	1298
9	9	**54**	58	**99**	115	**144**	181	**189**	261	**234**	363	**279**	502	**324**	725	**369**	1330
10	10	**55**	59	**100**	116	**145**	182	**190**	263	**235**	365	**280**	506	**325**	732	**370**	1364
11	11	**56**	60	**101**	117	**146**	184	**191**	265	**236**	368	**281**	510	**326**	738	**371**	1402
12	12	**57**	62	**102**	119	**147**	186	**192**	267	**237**	371	**282**	514	**327**	745	**372**	1444
13	13	**58**	63	**103**	120	**148**	187	**193**	269	**238**	373	**283**	517	**328**	753	**373**	1492
14	14	**59**	64	**104**	121	**149**	189	**194**	271	**239**	376	**284**	521	**329**	760	**374**	1546
15	15	**60**	65	**105**	123	**150**	190	**195**	273	**240**	379	**285**	525	**330**	767	**375**	1609
16	16	**61**	66	**106**	124	**151**	192	**196**	275	**241**	381	**286**	529	**331**	775	**376**	1685
17	17	**62**	68	**107**	125	**152**	194	**197**	277	**242**	384	**287**	533	**332**	783	**377**	1780
18	18	**63**	69	**108**	127	**153**	195	**198**	279	**243**	387	**288**	537	**333**	791	**378**	1907
19	19	**64**	70	**109**	128	**154**	197	**199**	281	**244**	390	**289**	542	**334**	799	**379**	2097
20	21	**65**	71	**110**	130	**155**	199	**200**	283	**245**	392	**290**	546	**335**	807	**380**	2477
21	22	**66**	72	**111**	131	**156**	200	**201**	285	**246**	395	**291**	550	**336**	815		
22	23	**67**	74	**112**	132	**157**	202	**202**	288	**247**	398	**292**	554	**337**	824		
23	24	**68**	75	**113**	134	**158**	204	**203**	290	**248**	401	**293**	559	**338**	833		
24	25	**69**	76	**114**	135	**159**	206	**204**	292	**249**	404	**294**	563	**339**	842		
25	26	**70**	77	**115**	137	**160**	207	**205**	294	**250**	407	**295**	567	**340**	851		
26	27	**71**	78	**116**	138	**161**	209	**206**	296	**251**	410	**296**	572	**341**	861		
27	28	**72**	80	**117**	140	**162**	211	**207**	298	**252**	413	**297**	576	**342**	871		
28	29	**73**	81	**118**	141	**163**	213	**208**	301	**253**	415	**298**	581	**343**	881		
29	30	**74**	82	**119**	143	**164**	214	**209**	303	**254**	418	**299**	586	**344**	891		
30	31	**75**	83	**120**	144	**165**	216	**210**	305	**255**	421	**300**	590	**345**	901		
31	32	**76**	85	**121**	145	**166**	218	**211**	307	**256**	425	**301**	595	**346**	912		
32	33	**77**	86	**122**	147	**167**	220	**212**	310	**257**	428	**302**	600	**347**	923		
33	34	**78**	87	**123**	148	**168**	221	**213**	312	**258**	431	**303**	605	**348**	935		
34	36	**79**	88	**124**	150	**169**	223	**214**	314	**259**	434	**304**	610	**349**	947		
35	37	**80**	90	**125**	151	**170**	225	**215**	316	**260**	437	**305**	615	**350**	959		
36	38	**81**	91	**126**	153	**171**	227	**216**	319	**261**	440	**306**	620	**351**	972		
37	39	**82**	92	**127**	154	**172**	229	**217**	321	**262**	443	**307**	625	**352**	985		
38	40	**83**	94	**128**	156	**173**	230	**218**	323	**263**	447	**308**	630	**353**	998		
39	41	**84**	95	**129**	157	**174**	232	**219**	326	**264**	450	**309**	635	**354**	1012		
40	42	**85**	96	**130**	159	**175**	234	**220**	328	**265**	453	**310**	641	**355**	1027		
41	43	**86**	97	**131**	160	**176**	236	**221**	330	**266**	456	**311**	646	**356**	1042		
42	44	**87**	99	**132**	162	**177**	238	**222**	333	**267**	460	**312**	652	**357**	1058		
43	46	**88**	100	**133**	163	**178**	240	**223**	335	**268**	463	**313**	657	**358**	1075		
44	47	**89**	101	**134**	165	**179**	242	**224**	338	**269**	466	**314**	663	**359**	1092		
45	48	**90**	103	**135**	167	**180**	243	**225**	340	**270**	470	**315**	669	**360**	1110		

dichiarazione di conformità

E.C. declaration of conformity

AQUARIA srl
Via della Levata n°14 – 20084 Lacchiarella (MI) – Italy

rapresented by its President
Emilio Dadati

DECLARE that

the MICROFLOW microbiological air sampler, "**MICROFLOW α**"
serial number N°

conforms to the following E.C. standard:

Immunity:	IEC 1000 – 4- 3	(R.F.E.M. Field)
	IEC 1000 – 4 – 2	(Electrostatic Discharge)
Emission:	EN 55011	(Conducted Emission)
	EN 55011	(Radiated Emission – Pre-Compl.)
Others:	CEI EN 50082 - 2	(Generic Immunity Std)
	CEI EN 50081 - 1	(Generic Emission Std)

Lacchiarella,

AQUARIA srl.
President

IQNet

THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

***CISQ/IMQ** has issued an IQNet recognized certificate that the organization:*

AQUARIA SRL
VIA DELLA LEVATA 14 - 20084 LACCHIARELLA (MI)

has implemented and maintains a
Quality Management System
for the following scope:

Design, assembly, reselling and repairing of instruments and accessories for sampling and analysis of environmental pollution
Further clarifications regarding the applicability of ISO 9001:2015 requirements may be obtained by consulting the organization

which fulfills the requirements of the following standard:

ISO 9001:2015

Issued on: ***2018 - 09 - 07***
Expires on: ***2020 - 07 - 14***

This attestation is direcly linked to the IQNet Partner's original certificate and shall not be used as a stand-alone document

Registration Number: IT - 12627

Alex Stoichitoiu
President of IQNET

Ing. Claudio Provetti
President of CISQ

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CERTIFICATO N.
CERTIFICATE N. **9190.AQU2**

SI CERTIFICA CHE IL SISTEMA QUALITA' DI
WE HEREBY CERTIFY THAT THE QUALITY SYSTEM OPERATED BY

AQUARIA SRL
VIA DELLA LEVATA 14 - 20084 LACCHIARELLA (MI)
UNITA' OPERATIVE / *OPERATIVE UNITS*

VIA DELLA LEVATA 14 - 20084 LACCHIARELLA (MI)

E' CONFORME ALLA NORMA / *IS IN COMPLIANCE WITH THE STANDARD*

ISO 9001:2015

PER LE SEGUENTI ATTIVITA' / *FOR THE FOLLOWING ACTIVITIES*

Progettazione, assemblaggio, commercializzazione e riparazione di strumenti ed accessori per il campionamento e l'analisi degli inquinanti ambientali
Design, assembly, reselling and repairing of instruments and accessories for sampling and analysis of environmental pollution

Ulteriori informazioni riguardanti l'applicabilità dei requisiti ISO 9001:2015 possono essere ottenute consultando l'organizzazione
Further clarifications regarding the applicability of ISO 9001:2015 requirements may be obtained by consulting the organization

IL PRESENTE CERTIFICATO E' SOGGETTO AL RISPETTO DEL REGOLAMENTO PER LA CERTIFICAZIONE DEI SISTEMI DI GESTIONE
THE USE AND THE VALIDITY OF THE CERTIFICATE SHALL SATISFY THE REQUIREMENTS OF THE RULES FOR CERTIFICATION OF MANAGEMENT SYSTEMS

DATE:	PRIMA CERTIFICAZIONE *FIRST CERTIFICATION*	EMISSIONE CORRENTE *CURRENT ISSUE*	SCADENZA *EXPIRY*
	1999-12-22	2018-09-07	2020-07-14

IMQ S.p.A.- VIA QUINTILIANO, 43 - 20138 MILANO ITALY
Management Systems Division - Flavio Ornago

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