MIRION TECHNOLOGIES

PREMIUM ANALYSE™

HC ionix™

Carbon-14 Bubblers

The HC IONIX bubblers are designed for trapping carbon-14 in both gas and organic form. This method has a proven efficiency for radioprotection purposes, environmental surveillance as well as stack release monitoring.

DESCRIPTION

The HC IONIX bubblers product range gathers several samplers designed for monitoring levels of atmospheric carbon-14, both gas and organic.

The HC IONIX bubblers are suitable for all applications in stack and ventilation systems monitoring, surveillance of premises or even environmental monitoring.

These devices have been designed according to the requirements of the NF M60-812-1 and M60-822-1 standards. Easy to use, light and rugged, these bubblers offer some of the most advanced features, such as:

• Reduced liquid volume

• Remote control via Modbus Ethernet

• Record of defects and measurement conditions.

The HC IONIX bubblers can be easily and quickly converted into HT IONIX bubblers for sampling and trapping tritium, thanks to a conversion kit available as an option.

FEATURES

✔ **High trapping efficiency**

• CO_2 > 95%

• Trapping efficiency validated in laboratory

✔ **Convenient**

• Intuitive to use

• Limited liquid loss

• Quick and easy set up

• No outside condensation

✔ **Easy maintenance**

• Small footprint

• Stainless steel sampling circuit

• Light (weight < 15 kg) and rugged

• Only one annual maintenance required

✔ **User-friendly**

• Color touch screen

• Color identification of bottles

Specifications and Performance

MAIN CHARACTERISTICS

- The HC IONIX bubblers are available in two versions:
  - The HC IONIX 20 bubbler allows sampling of carbon-14 in the CO_2 form,
  - The HC IONIX 22 bubbler allows sampling of carbon-14 in the CO_2 form as well as organic form after catalytic oxidation in a furnace.

	HC IONIX 20	HC IONIX 22
Main characteristics		
Overall dimensions	L 410 x H 315 x D 340 mm	L 510 x H 315 x D 340 mm
Weight (empty)	< 12 kg	< 15 kg
Power supply	100-240 Vac 50-60 Hz	
Max power	240 W	530 W
Electrical protection	Fuses 2 A (220 V) & 10 A (24 V)	
Dry-contact outputs	6 outputs (flow, pump, cooling, electronic, proper functioning, status error)	7 outputs (flow, pump, cooling, electronic, proper functioning, status error, furnace)
Volume of bottles	250 mL	
Recommended liquid volume	175 mL of liquid	
Sampling circuit	100% stainless steel	
Inlet filter	1 µm fiberglass	
Gas I/O	6 mm Swagelok double ring connectors	
Flow rate	Customizable from 50 cc/min to 850 cc/min (3 L/h to 51 L/h)	
Furnace temperature settings	N.A	Recommended 450 °C, max 500 °C

OPERATING CONDITIONS

- Use temperature: +2 °C to +48 °C (*+35 °F to +118 °F*)
- Storage temperature: -5 °C to +70 °C (*+23 °F to +158 °F*)
- Use pressure: $P_{atmospheric}$
- Humidity: < 95% (without condensation)
- Protection level: IP40

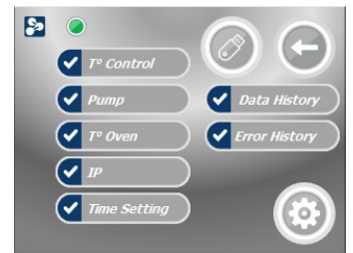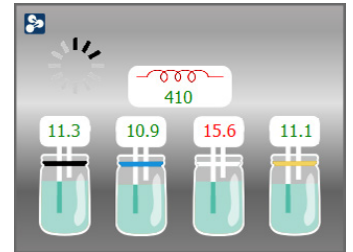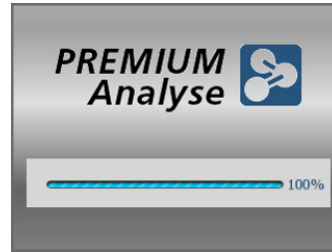

HC IONIX 20

Two bottles CO_2 sampler

FEATURES

Gas sample circuit:

- Flow regulation based on pressure drop
- Sampling circuit 100% made in stainless steel
- Color identification of bottles to limit the risk of switching
- Installation and removal of bottles made easy thanks to a standard thread (GL 45)
- Filtration of particles up to 1 micron through a front mounted easily interchangeable filter
- Mass flowmeter, calibrated with a certified standard COFRAC flowmeter over the range of 50 to 850 cc/min (3 to 51 L/h)
- Relative Humidity Compensation system
  - No condensation outside of the bubbler
  - Reduced liquid losses in all bottles even on long measurement period (up to 1 month)
- Self-regulating catalytic oxidation furnace with durable catalyzer
- Connectors for the rinsing system easy to reach on the back panel

Electronic control:

- Color touch screen
  - Display of the sampling history, real-time errors, sampling status history,...
  - Display of operating and sampling data (standardized flowrate, sampling duration, volume sampled,...)
- Ability to reset the duration and volume sampled before each new measurement campaign on the main screen.
- Light and sound alarm
- 4-20 mA input for external flowmeter
- Autotest at startup and permanent self-control
- Remote beacon connector (additional beacon required)
- Modbus Ethernet connection allowing remote visualization of faults and the status of operation as well as unit remote control
- Dry-contact outputs for the transmission of faults (flow, pump, furnace, cooling, electronic, general failure)

Delivered with power supply cable, glass bottles, conformity certificate, user and maintenance manual and Modbus registers.

Software interface

Back of the device

QUALIFICATIONS

- Tested in Mirion Technologies (Premium Analyse) gas laboratory
- CE conformity
- Test reports available on request.

HC IONIX™ CARBON-14 BUBBLERS

REFERENCES

CO$_2$ carbon-14 bubbler	**HC IONIX 20**
CO$_2$ + CO carbon-14 bubbler	**HC IONIX 22**

ACCESSORIES

125 mL conversion kit (4 bottles)	**HTI ACC 4F 125**
Rolling table for 1 bubbler	**HTI ACC TR1**
Carrying basket for 8 bottles 250 mL	**HTI ACC PT250**
Clamp alarm beacon	**ACC BAL P**
Fixed alarm beacon	**ACC BAL F**
Transport case with foam block	**HTI ACC PEL**
Rinsing or decontamiantion system	**HTI ACC SRD**

CONSUMMABLES

Sampling filters (pack of 100)	**HTI SP FPR**
RHCS fan	**HTI SP VHR**
RHCS fan filter (pack of 12)	**HTI SP FHR**
Case fan	**HTI SP VBT 3**
Case fan filter (pack of 6)	**HTI SP FBT 3**
Pump	**HTI SP PPE**

SPARE PARTS

Pack of 4 125 mL bottles	**HTI SP 4FL 125**
Pack of 4 250 mL bottles	**HTI SP 4FL 250**
RHCS head	**HTI SP SCHR 4**
Oxidation furnace	**HTI SP FOX**
Diving tube for 125 mL bottle	**HTI SP TP125 v3**
PTH probe	**HTI SP PTH**
Flowmeter	**HTI SP DEB 2**
Gaskets kit (pack of 2)	**HTI SP JNT**
Power fuses (pack of 2)	**HTI SP FUS 2A**
Main board fuse	**HTI SP FUS 10A**
Touch screen assembly	**HTI SP ECR**
RHCS management card	**SSP HTI GHR A1**
System control card	**SSP HTI EPE A3**
NTC probe	**HTI SP NTC 3**

MAINTENANCE

Annual maintenance kit without pump (FPR + FHR + FBT 3)	**HTI MNT KIT 3**
Annual maintenance kit with pump (FPR + FHR + FBT 3 + PPE)	**HTI MNT KIT PPE 3**
Annual maintenance fee	**HTI MNT ANN**
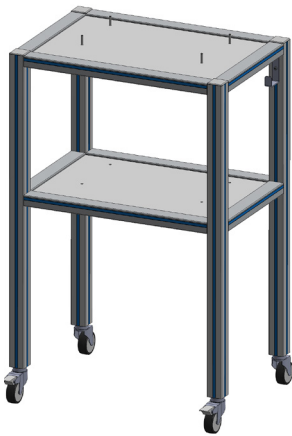
Rolling table
HTI ACC TR1

HTI SP VBT 3
Box Fan 1

HTI SP FBT 3
Box Filter 1

HTI SP FBT 3
Box Filter IN

HTI SP FBT 3
Box Filter 2

HTI SP VBT 3
Box Fan 2

HTI SP VHR (x4)
SCHR Fan

HTI SP PPE
Pump

HTI SP FHR (x4)
SCHR Filter