

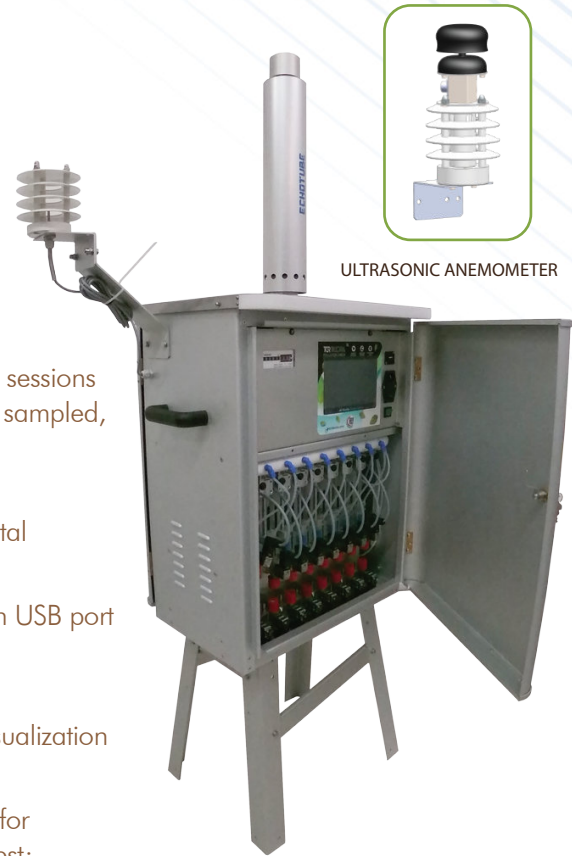


Sequential Sampler on vials for gaseous compounds

ECHOTUBE

MAIN FEATURES

- ⊙ Instantaneous flow measurement through calibrated orifice and flow regulation through special motorized valve;
- ⊙ Sampled volume measurement through volumetric counter;
- ⊙ Flowrate from 100 to 2000 cc/min;
- ⊙ Anti-pulse system to ensure constant flowrate and to avoid fluctuations;
- ⊙ High accuracy in flow measurement;
- ⊙ Manual starter, through timer (start/stop), with external event via digital input or with meteorological data input;
- ⊙ Information on customer/site/measuring area insertable from keyboard;
- ⊙ Memorization up to 512 sampling sessions (location, number of vials, volume sampled, min temperature, med, max);
- ⊙ Measurement of temperature and atmospheric pressure, environmental humidity (optional);
- ⊙ Data report downloadable through USB port or through WIFI from any device (smartphone/tablet/PC);
- ⊙ Power losses memorization and visualization on the report;
- ⊙ Measurement of line low pressure for functional checking and leakage test;
- ⊙ Available power supply: 230VAC – 110VAC.



ULTRASONIC ANEMOMETER

The **ECHO TUBE** sampler has been studied and designed for sequential sampling on vials for gaseous compounds at flowrate from 100 to 2000 cc/min, and to comply to regulation request on sampling field, prescribed in the EN 14662-2:2005 "Ambient air quality – Standard method for measurement of benzene concentrations – Part 2: Pumped sampling followed by solvent desorption and gas chromatography".

FORMALDEHYDE

ECHO TUBE with additional options, meets all the indications of the norms EN/ISO 16000-3 and EPA TO 11-A about indoor and outdoor formaldehyde sampling.

Temperature regulation system and post-sampling maintaining (option). The regulations require, in order not to alter the sample and affect the analytical result, to heat the vial if temperature drop below 10°C. Also, sampling completed, the vials have to be cooled at 4°C.

This procedure is particularly suitable in case of 3-hour sampling within 24-hour day.

Line ventilation before and after sampling (option).

Before starting the sampling, an automatic system allows ventilation and conditioning of the incoming supply air line. At the next sampling, the operation is repeated.

Heated line (option). The external sampling tube is made of AISI316L stainless steel and heated to max 50°C (option) as required by standard. This is particularly suitable for low temperature, even below 0°C.





Scrubber to eliminate ozone (option). Particular attention has been paid during the design phase to allow the user to use both potassium iodide filled vials available in the market and as well as system with copper coil to be treated with potassium iodide (procedure described in the standard).

UP TO 32 VIALS!

The containment structure and an additional vials support system (option) allow to sample up to max 32 vials commonly available on the market. The vials manifold supports are equipped with stainless steel electro valves on both sides to seal the vial before and after sampling, avoiding external contamination.

FLOWRATE REGULATION SYSTEM

The **TCR TECORA®** flow regulation system (adopted on all new samplers of the successful BRAVO series) can adjust the sampling flowrate from 100 to 2000 cc/min (other flowrate on request) with an adjustment accuracy of 1% of the measured value. The suction pump is adequately sized to cope with the pressure drop typical of long sampling periods. A volumetric counter transmits the data of the sampled volume to the data logger to ensure the accuracy in the calculation of the accumulated pollutant. This system also makes it possible to verify any deviations with the instantaneous flowrate measurement through calibrated orifice.

TOTAL FLEXIBILITY IN CONFIGURATION FLOW AND SAMPLING TIMES

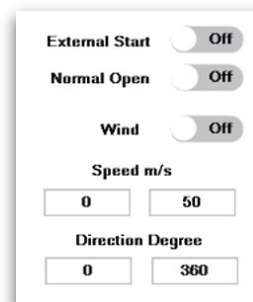
All operations are managed by a microprocessor electronic board. The user interface consists of touch screen display and keyboard. We opted for "dual management" touch-keys for comfortable and immediate operation in all environmental condition.

The sampler management program allows you to define for each vial the start/stop time and the related flowrate. Alternatively, you can define a volume to be sampled at a defined flowrate for which automatically the aspiration time is calculated. The system is also capable of sampling 2 vials in "tandem". Automatic restart in case of power failure due to power surge or power failure in case of mains problems, **ECHO TUBE** records the anomaly and restart automatically when the power is restored. Archiving of all measured parameters on internal datalogger and download data via USB key or WIFI via dedicated application.

By installing a router (optional) with a data SIM card the sampler can be manage remotely (display real time operation and control of some basic functions) and you can view/download the archived data.

"EVENT BASED" SELECTIVE SAMPLING

Via digital input (from datalogger or other device) is possible to command a sampling sequence. Furthermore, with a wind speed/direction sensor (optional) and dedicated programming, the sampling is activated with predetermined flowrate and timing.



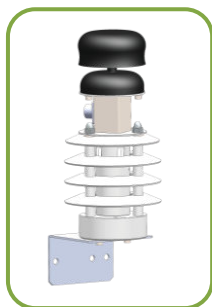
ENCLOSURE PROTECTION DEGREE IP55

The sampler can be installed indoor or directly outdoor and exposed to the weather.





TCRTECORA[®] POLLUTION CHECK



ULTRASONIC ANEMOMETER

Wind Speed

Range: 0 - 40 m/s

Accuracy: ± 0.1 m/s at 10m/s

Wind Direction

Range: 0 - 360°

Accuracy: $\pm 1^\circ$



*The product image is indicative only.

TECHNICAL SPECIFICATIONS

PRODUCT CODE: AA99-001-0400SP

Pump Type	Membrane single head corrosion resistant
Maximum flowrate (free mouth)	Max 2 l/min (Up to 20 l/min sampler H M as Optional)
Flow measurement	Orifice meter
Flowrate regulation range	0.100-2.00 l/min
Volume sampled measurement	Accuracy volumetric counter 2% v.m.
Volumetric counter range - DIG - X	0.006-2.5 m ³ /h
Temperature sensor on volumetric counter	Thermal resistance PT100, accuracy $\pm 0,1$ °C
Number of vials	2 modules with 8 standards, 16 vials total (additional option further modules from 8 to max 32 vials)
Parts in contact with the fluid	Stainless steel AISI316L, anodized aluminum, silicone, PVDF
Sampling low pressure measurement sensor scale range	0÷103 kPa Acc. ± 0.1 kPa, resolution 0.01 kPa
Ambient temperature measurement sensor scale range	-20÷50 °C – Accuracy ± 0.1 °C
Ambient humidity measurement sensor scale range	10÷99 % RH (Option)
Ambient pressure measurement sensor scale range	0-103 kPa, Acc. ± 0.1 kPa, resolution 0.01 kPa (option)
Data management	Microprocessor electronics
User interface	Membrane keyboard IP65/color display
Data storage	Internal memory and SD card
Environmental operating conditions	External temperature: -20÷50 °C Humidity: 10±95% RH (non-condensing)
Weight	25 Kg
Dimensions	483 x 411 x 629 (h instrument) mm
Stand height	439 mm
Probe height	700 mm (excluding PTS head)
Power Supply	230 VAC 50-60 Hz 110 VAC 50-60 Hz
Consumption	250 W

3

