

# Environmental Aerosol Sampler EAS 70K

## TECHNICAL SPECIFICATIONS

Designation: Environmental Aerosol Sampler  
Nominal Flow:  $70 \text{ m}^3 \cdot \text{h}^{-1}$   
Reference: P-535-130

### Description:

Air sampler adapted to the monitoring of airborne aerosols in the environment.

A servomechanism maintains the sampling flow rate at the set point value.

Compliant with the French standard **NF-M-60-760**: aerosol sampling in order to measure radioactivity in the environment.



### Filtering media:

Paper, fibreglass or polypropylene electrostatic filters.  
Diameter: outside / net: 130/125 mm or 230/220 mm  
Other dimensions on request, subject to the turbine capacity  
Filter holder supplied with storage case

### Sampling head:

Compliant with NF M 60-760 standards  
Comprising of:  
A stationary lower part fixed to the housing  
A mobile upper part to access the filter  
Two lateral clamps  
Antistatic protection cover  
Sintered bronze filter support



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## Sampling pump:

Double stage lateral channel turbine  
Sampling flow control via a 10-60Hz, 230V three phase variable frequency drive  
Maximum acceptable pressure drop at  $70 \text{ m}^3 \cdot \text{h}^{-1}$ : 250 hPa  
Power usage at maximum pressure drop: 2.2 kW  
Sampling flow rate adjustable from  $50 \text{ m}^3 \cdot \text{h}^{-1}$  to  $70 \text{ m}^3 \cdot \text{h}^{-1}$   
Air outlet hose

## Air flow measurement:

Mass flow sensor associated to a shunt located in the main air circuit  
Shunt ratio 1/30  
System response determined by calibration  
Voltage output 0 to 5V



## Sampler management:

Proprietary circuit board  
CPU PIC 18F4620 with in-situ programming  
Flow rate measurement chain:  
Analog-to-digital converter with a 10 bit precision.  
Each flow rate measure is the mean value from 10 elementary measures  
Determination of the sampling flow rate from the calibration curve  
Determination of the volume sampled since the last reset of the volume counter  
Housing temperature measurement chain:  
Analog-to-digital converter with a 10 bit precision.  
Determination of the temperature from the manufacturer's calibration curve  
Servomechanism:  
Via a digital 8 bit potentiometer to control the pump supply voltage frequency  
Status : 2 status bytes

## Input output:

2 push buttons  
Alphanumeric LCD screen, backlit, temperature compensated, 4 lines of 20 characters  
RS232 port (optional: RS485 port with MODBUS protocol allowing remote control of the EAS), on-board terminator

## Detectable faults:

Flow rate outside of the factory set range  
Housing temperature out of the factory set range  
Mains power cut

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## External housing:

Metallic profile main frame 40 mm in section  
Monoblock composite cladding attached to the frame in 6 places  
The pump is located in the lower part of the housing  
Lateral mesh-protected air vents  
The air circuit is located in the upper part of the housing  
Front and back opening trap doors allow easy access for maintenance  
Height under lower frame: 98 mm  
2 handles and 2 wheels for mobility  
2 adjustable feet  
Three ground anchors supplied

## Electrical box:

Electrical box with ventilation integrated in the housing.  
Power supply and power routing  
3x6 mm<sup>2</sup> power cable, remote control input and default output by 5 x 1.5 mm<sup>2</sup> cable through 2 cable glands  
Remote control input on 230 V AC relay  
Default output: on-off controller with active safety (the contact is open in the absence of voltage)  
Protections:  
Variable drive + pump: 32A circuit breaker  
Electronic housing: 2A circuit breaker  
Locking of the front and back trap doors with 1242E keys  
SIEMENS variable frequency drive with EMC filter

## Electronic box:

12V continuous power supply protected with a power filter  
Fuse protected ALGADE proprietary board  
Temperature sensor LM35CZ  
EMC steel casing

## EMC:

Electrical box certified EMC.  
Door panel electrical housing designed in EMC stainless steel.  
Electrical housing and box linked by a flexible metal conduit with bonding  
Outputs via 2 cable glands with bonding  
The manufacturer certifies compliance with the standards EN55022, EN50082-2, IEC 61010

## PAView software:

Available on [www.algade.com](http://www.algade.com)  
Setting of operating parameters/ nominal flow/access code/ communication mode/date/time  
Recording capacity: 700 measures with dates and times

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## Operation:

Access by modifiable 4 digit PIN code  
Parameters setting locally or via software  
24/24 sampling over a period of time extending to 3 days  
Flow rate measures every 36s, followed by a frequency adjustment of the pump supply voltage.  
Local or remote stop / start  
Automatic restart when power is restored  
on-off output for fault reporting

## Materials used:

Upper air circuit: stainless steel 316, filter support excepted (sintered bronze as standard or sintered stainless steel in option)  
Lower air circuit (past the sampling head): silicon /SBR/NR with fabric sheathing  
Polyamide flow sensor shunt  
Stainless steel filter holder and storage case  
Galvanised steel electric housing, protected by a coat of paint  
Fibreglass and polyester resin external cover (Mint green RAL6029)  
Aluminium profile frame

## Power supply:

Single-phased 230Volts 50Hz  
Upper residual current circuit breaker: 300 mA  
Maximum power usage 4 kW

## Environment:

Noise level: 59 dB ( $70 \text{ m}^3 \cdot \text{h}^{-1}$  / no filter/ outlet pipe length 5 m)  
63 dB ( $70 \text{ m}^3 \cdot \text{h}^{-1}$  / with filter/ outlet pipe length 5 m)  
Temperature range: -20°C, + 40°C / extendable on request  
Ingress protection rating : IP 54

## Dimensions and weight:

Dimensions over all: 834 x 1605 x 720 mm (l x h x d)  
External housing: 834 x 1006 x 720 mm (l x h x d)  
Sampling height: 1500 mm  
Weight: 95 kg

## Misc:

EEX Certification: none

## References:

### 1-Type (mandatory)

EAS 70K P-535-130

### 2-Sampling head (mandatory)

Sampling head diameter 130 / 125 mm P-535-115

Sampling head diameter 230 / 220 mm P-535-123

### 3-Filter holder and storing case

Filter holder diameter 130 / 125 mm P-535-122

Filter holder diameter 230 / 220 mm P-535-123

### 4-Options:

RS485 // Extended temperature range

Sintered stainless steel filter support M-531-154  
diameter 130mm

*Customised add-on options developed on request*