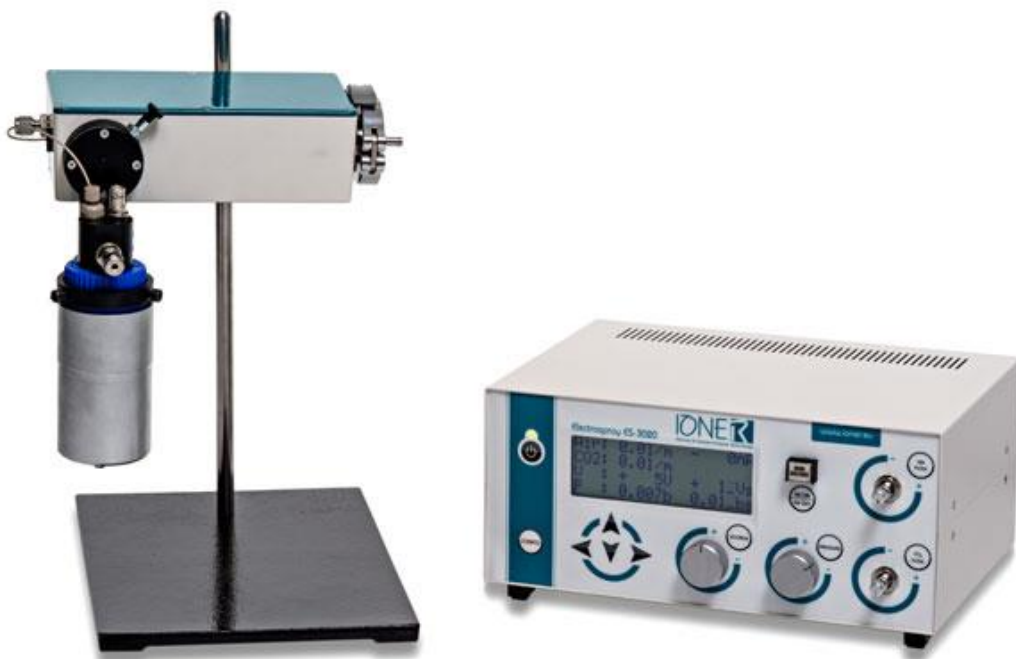


## Product datasheet

### IONER Electropray Aerosol Generator ES-3020



#### Applications

- Nanoparticle aerolization from liquid dispersions.
- Nanoparticle charging.
- Fundamental electropray research.
- Sizing studies of nanoparticles.
- DMA calibration.
- Coating of surfaces with Nanoparticles.
- Source of biomolecules (DNA, proteins) for Mass Spectrometers

## Benefits

- High versatility: Several capillaries materials and sizes available for a broad conductivity range. Aerosol can be generated horizontally or vertically
- User friendly: easy maintenance and exchange of capillaries.
- Liquid propelled by a pressure system. Syringe pump system optional.
- Available capillary inner diameter: 25, 50, 75, 100, 200 & 300 microns
- Electro spray current monitoring
- Visual monitoring of Taylor's cone.
- Improved visualization of the jet and the spray image and video capture.
- Automatic pressure control

## Description

Ioner Electrospray ES 3020 is the best option to aerosolize Nanoparticles directly from the liquid dispersion. The ES-3020 is based on the electrofluid-dynamic atomization process of a liquid. Ioner's Electrospray is equipped with several capillaries with different ID and material that allows the electrospray phenomena of most of original dispersions without modification or dilution in a carrier solvent. Syringe pump available as option for accurately controlled flow rates for higher ID capillaries.

Ioner's Electrospray produces highly monodisperse droplets and nanoparticles.

The way the aerosol is generated is:

- The sample's head-space is pressurized, so the sample must go up a capillary submerged in the sample. High voltage is applied in the dispersion.
- The sample is polarized and Taylor cone is generated on the sharp ending of

the capillary. The aerosol is swept by the carrier gas.

- This unit is set to monitor the tip of the capillary using no external devices, keeping the operator free of high voltage discharges.
- The visualisation is carried out through a USB port connected to a PC that will show the image of the Taylor Cone created at the end of the capillary.
- The ES-3020 electrospray source can generate several liters per minute (LPM) of

- The carrier gas flow is digitally controlled and visualized with a manual valve on the front of the control unit.

## Features

High versatility: aerosol can be generated horizontally or vertically (downwards or upwards).

- User friendly: easy maintenance and exchange of capillaries.
- Syringe pump available.
- Visual monitoring of Taylor's cone.
- Monitoring of electric current delivered by HV source.
- Two LEDs for a better visualization of the jet and the spray image and video capture.
- Split in two modules (control unit and electrospray unit) for higher flexibility and mobility.
- Automatic pressure control.

## Capillaries

- PEEK (OD =1/16"); ID: 64, 102, 127, 152, 178, 254, 381  $\mu\text{m}$
- PEEKsil (OD =1/16"); ID: 25, 50, 75, 100, 150, 175, 200, 300  $\mu\text{m}$
- Stainless Steel 304:

OD [ $\mu\text{m}$ ]	ID [ $\mu\text{m}$ ]
400	160
500	260
600	300
700	400

## Specifications

<b>Maximum carrier gas pressure</b>	5 bar
<b>Max current</b>	1 mA
<b>Sample conductivity</b>	5 $\mu$ S/cm – 20 mS/cm
<b>Carrier gas regulation range*1</b>	0.2-10.0 SLPM (resolution: 0.01 SLPM)
<b>Carrier gas connection</b>	4 mm stainless steel compression 316
<b>Maximum pressure gas pressure</b>	2 bar
<b>Pressure gas regulation range</b>	0.010-1.000 bar (resolution: 0.001 bar)
<b>Maximum pressure gas flowrate</b>	3.5 SLPM @ 2 bar
<b>Pressure gas connection</b>	4 mm stainless steel compression 316
<b>Dimensions: Control Unit Electrospray Unit</b>	300 x 130 x 210 mm 192 x 111 x 57 mm
<b>Weight: Control Unit Electrospray Unit</b>	5 Kg. 2 Kg.
<b>Power supply</b>	100-240 VAC/50-60Hz
<b>Max Consumption</b>	60W
<b>Operating temperature</b>	5-40°C
<b>Operating humidity conditions*2</b>	5-80%
<b>Communications</b>	Ethernet
<b>Software and Labview® drivers</b>	Included