

# DART-SVP Operation Requirements and Recommendations

**Power Requirements:** 100-240VAC, 2.3A, 50/60 Hz

## **Size:**

*Controller:*

12" x 9" x 4.5" (extra 0.5" with rubber feet)

Controller will operate in horizontal or vertical orientations.

Largest Footprint = 12" x 9"

Smallest Footprint = 12" x 5"

*Source:*

H = 6" (from bottom of base plate to top of mounting ring)

W = 6.25" (between y-axis adjustment knobs)

L = 10.5" (from front of mounting ring to back of base plate)

*Max Separation Distance, Source & Controller:*

Angle Source at max height and 45 degree tilt ~ 24"

Source Flat ~ 31"

(distances based on cabling length and proper bend radius for cable)

## **Cleaning:**

### ***Required***

A day or two *before* the DART installation, clean the area around the atmospheric pressure inlet (API) of your mass spectrometer, as well as the capillary and/or orifice cones. Due to the DART source's unique characteristics, contaminants that were not readily observed with an orthogonal spray sources may interfere with DART analysis.

## **Pumping:**

### ***Required***

Required for use with Vapur flange; customers not using a Vapur flange do not need pumping.

IonSense offers an external rough pump for purchase:

### **Vacuubrand MZ2 NT Pump**

Specifications here: <http://www.vacuubrand.com/en-pageID809.php>

Alternatively a customer may opt to use laboratory house vacuum as a substitute or an equivalent pump.

## **Gas:**

### **Required**

Helium: of at least 4.7 grade (99.997% pure.)

Nitrogen: of at least 4.8 grade (99.998% pure.)

Recommended size of tank is 300

## **Regulator:**

### **Required**

Our recommendation is a **single stage** regulator for each gas tank with the following specs:

Stainless steel diaphragm

Helium leak integrity of  $1 \times 10^{-9}$

Ultrasonically cleaned

1/4" NPT male or female outlet

DART-SVP inlet pressure is **80 PSI**. This is the optimum inlet pressure; different pressures may cause less than optimal performance.

NOTE: A dual stage regulator will work fine, two stages just isn't required.

Part no: SGD3101-100-580 from Specialty Gas Equipment Inc. ([www.sgd.com](http://www.sgd.com))

## **Communication: *wired or wireless***

### **Wired - Computer**

Computer must have an available Ethernet port and web browser. If all Ethernet ports are used then a USB to Ethernet adaptor must be provided. IonSense can provide this adaptor upon request.

You must use a cross-over Ethernet cable; one is provided with the DART.

*Web Browser:*

IonSense Recommends **FireFox v3.0 or higher**

OR

Internet Explorer v7 or higher

Google Chrome v5 or higher

### **Wireless - iPod**

Barring the use of a computer, wireless communication via DART Wireless Kit and Apple iPod Touch **must** be used.

## **Filter:**

### ***Recommended***

We recommend the use of a **particulate filter** on both N<sub>2</sub> and He gas lines entering the DART Controller if you are connected to **house gas lines**. If you have dedicated gas tanks, a filter is not necessary. This helps to ensure no foreign objects contaminate or block gas flow through the DART. The filter should be placed after the regulator and before the DART Controller.

NOTE: The use of filter will require you to increase the PSI setting on your regulator to make up for the loss in pressure due to the filter. Since each filter may be different we recommend you hook up a flow meter (see below) and be sure your output gas flow is approximately the same values as stated on the DART quality control document shipped with your unit.

Part no: SGD7510-10-P4MM from Specialty Gas Equipment Inc. ([www.sgd.com](http://www.sgd.com))

## **Flow Meter:**

### ***Recommended***

If customers wish to measure the flow rate of DART gas with an external meter, IonSense recommends the following:

Dwyer Instruments Gas Flow Meter ([www.dwyer-inst.com](http://www.dwyer-inst.com))

Part No: RMA-22

2-25 LPM Air

Omega Digital Mass Flow Meter ([www.omega.com](http://www.omega.com))

Part No: FMA1824

0-20 SLPM N<sub>2</sub> w/ Digital Display

For Helium flow rate multiply flow value by He Gas K Factor equal to 1.454.  
(AC Power adaptor must be purchased separately: FMA178PW)

Fittings needed for Omega Digital Flow Meter:

*Brass Swagelok Tube Fitting, ¼ in. Tube OD x ¼ in. Male NPT*

[www.swagelok.com](http://www.swagelok.com)

B-4-TA-1-4

Qty 2

*Polybutylene & Brass Push-to-Connect Fitting Adapter for 5/32" Tube OD X ¼" NPT  
Female Pipe*

[www.mcmaster.com](http://www.mcmaster.com)

5111K665

Qty 2

*Tubing, PTFE 2 mm ID, 4 mm OD, 1 mm Wall, Semi-Clear White*

[www.mcmaster.com](http://www.mcmaster.com)

52335K32

Qty 2ft