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Find the *IonSense DART 100-CE* at our website: ***Click HERE***

DART Ion Source

Hardware Manual

For JEOL AccuTOF JMS-T100LC

Version 20060220

IonSense Inc.
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Saugus, MA 01906

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The apparatus and application of the apparatus described in this document is protected by US Patent Number 6,949,741 and used under license; additional patents pending.

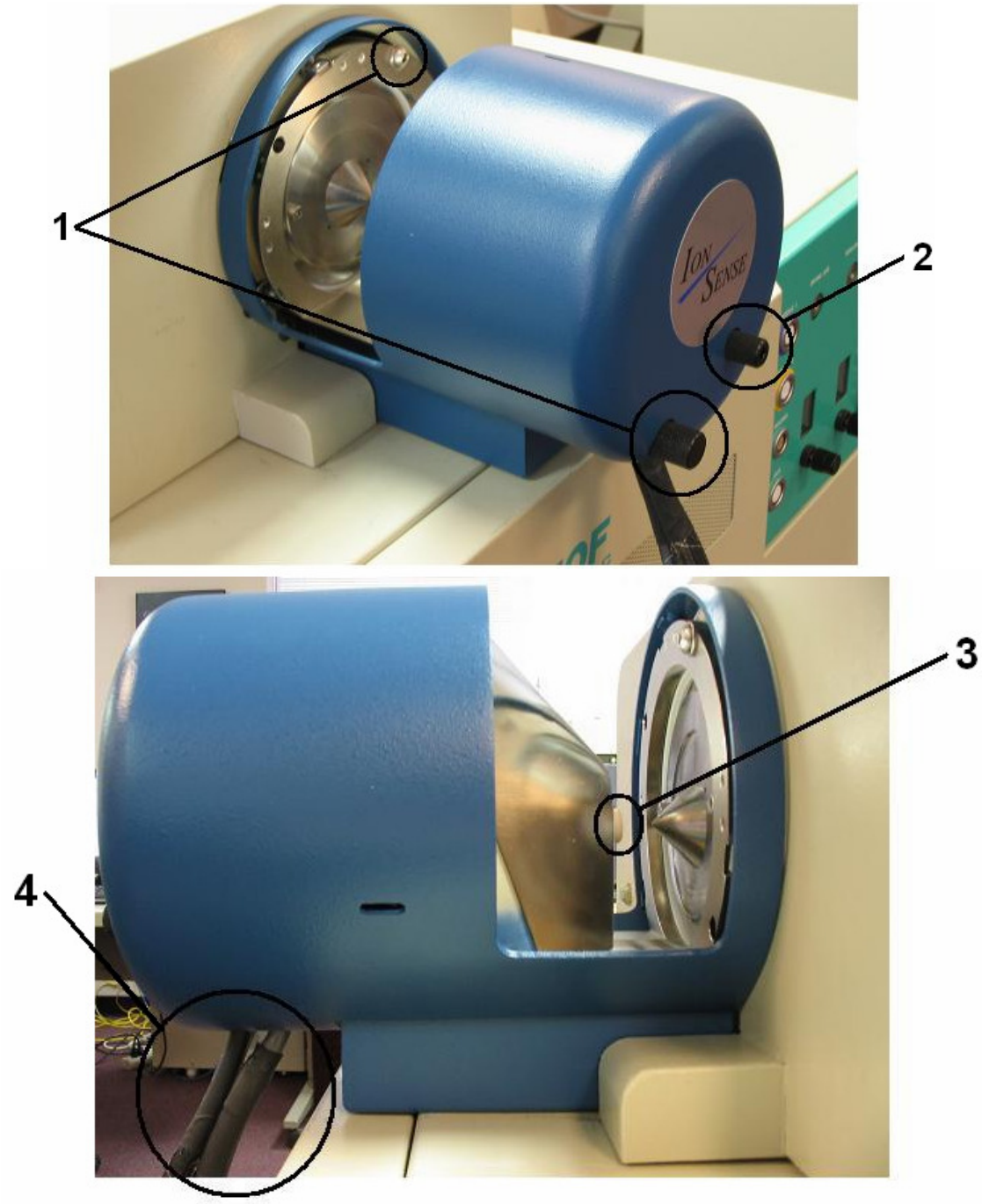
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Ion Source Description

- Here we will discuss the structure and installation of the DART ion source on the AccuTOF mass spectrometer.
    - DART (Direct Analysis in Real Time)
    - DART is an API (Atmospheric Pressure Ionization) source

DART Ion Source:



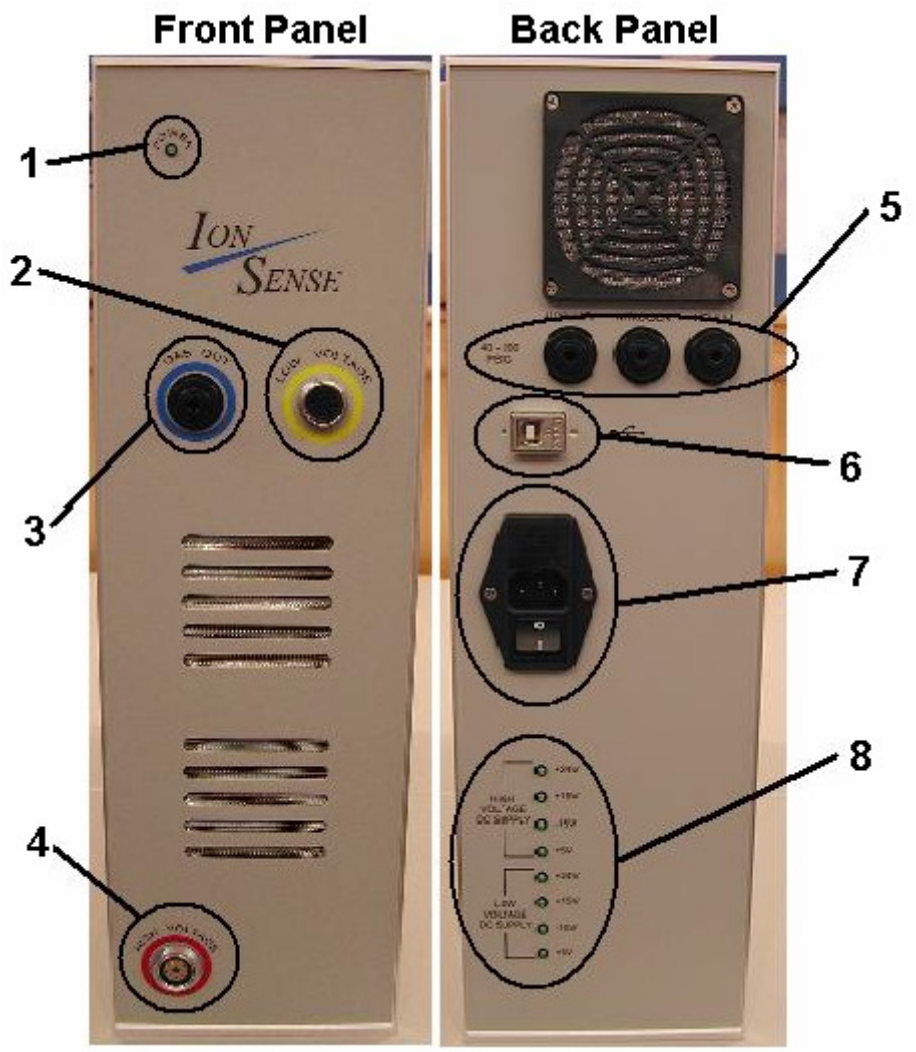
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1. Installation Screws
    a. Use these screws when securing or removing the DART
2. Z-Axis adjustment for DART
    a. This knob adjusts how close the DART tip is to the API inlet of the AccuTOF
3. DART Tip
    a. This is where DART's heated gas exits
4. High and Low Voltage Cables and Gas Line
    a. These cables hook up to the external power supply provided with the DART
    b. The high voltage is used to power the electrodes and the low voltage for the heater, thermocouple, and gas flow control.

DART Power Supply:



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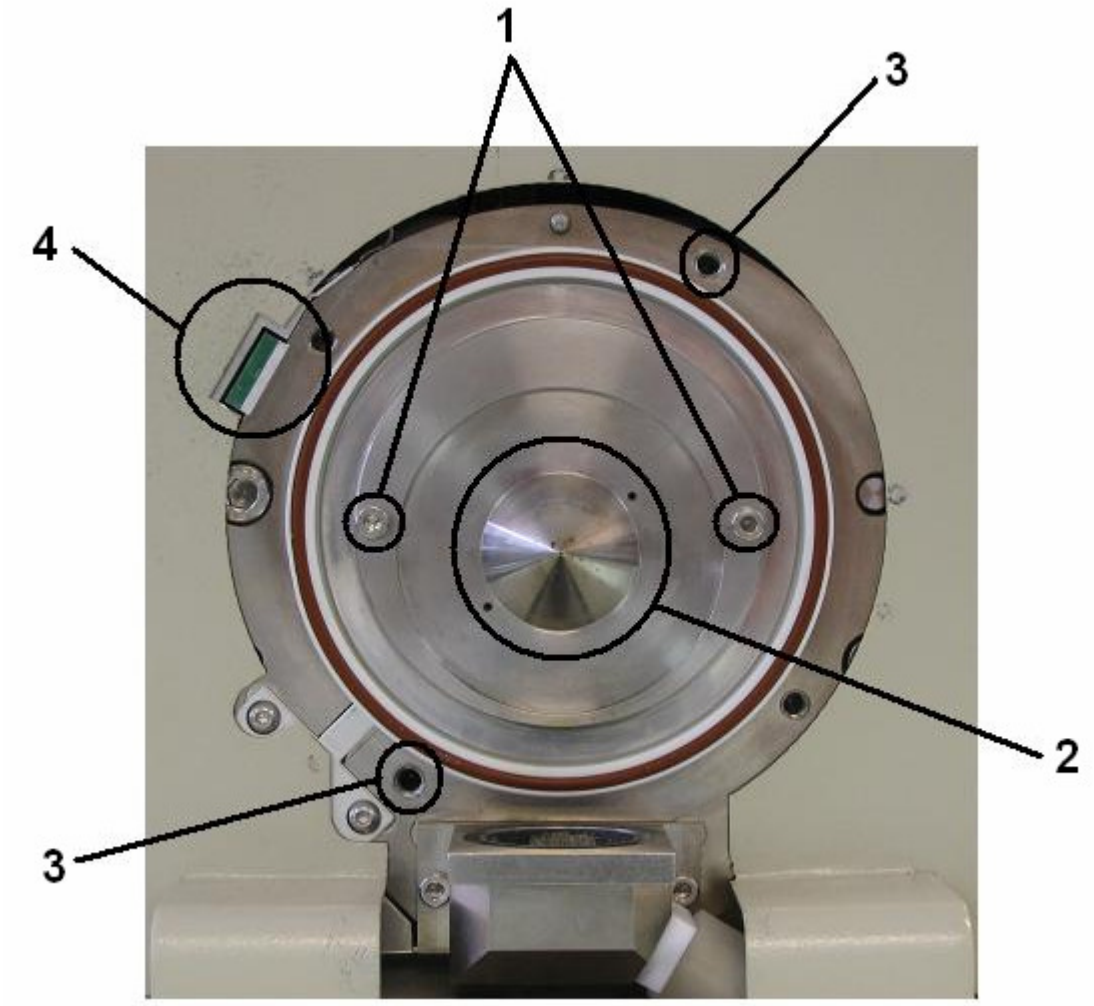


1. Power Led
    a. Indicates power is on.
2. Low Voltage outlet
    a. Plug in the low voltage cable from the DART source here.
3. Gas Out outlet
    a. Plug in the gas line connected to the low voltage cable here to connect gas flow to the DART.
4. High Voltage outlet
    a. Plug in the high voltage cable from the DART source here.
5. Gas Inlets
    a. Connect external helium, nitrogen, and auxiliary gas sources to these inlets using Teflon gas line provided.
6. USB Connection
    a. Use USB cable provided to connect power supply unit to computer.
7. Power Outlet and switch
    a. Use power cable to connect external power to power supply unit.
    b. Switch toggles power on and off

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8. High and Low voltage LED's
    a. Indicates proper voltage is being supplied from high and low voltage power supplies.

AccuTOF Ion Source Interface:

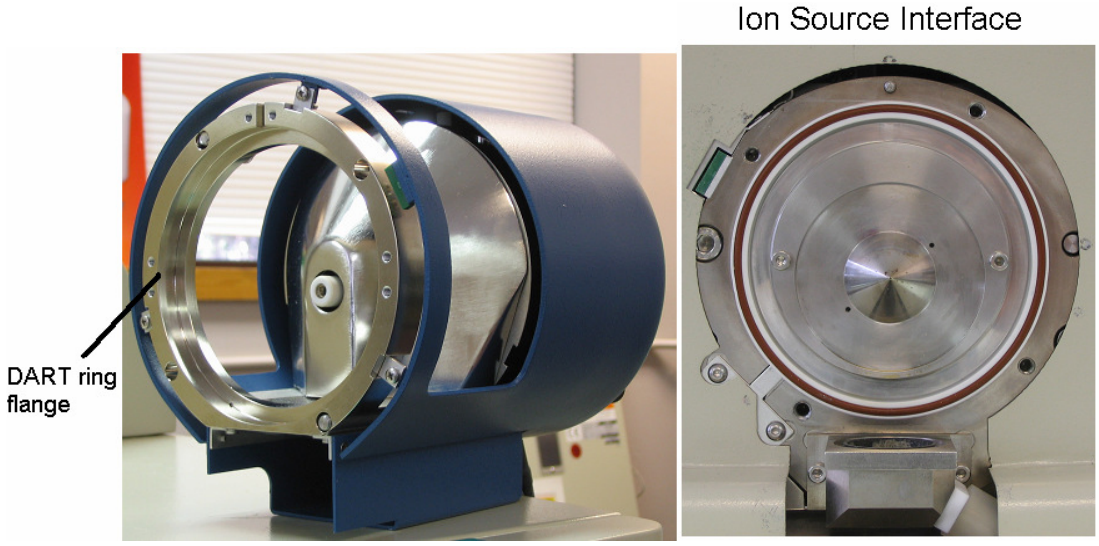


1. Fastening bolts for orifice 1
    a. These bolts hold orifice 1 in place
2. API Inlet Cone
    a. This is the inlet where ionized molecules enter the mass spectrometer
3. Fastening holes for DART source
    a. These threaded holes are used for securing DART to the source interface
4. Interlock switch for interface
    a. Removing the source operates this magnetic switch and interlock.

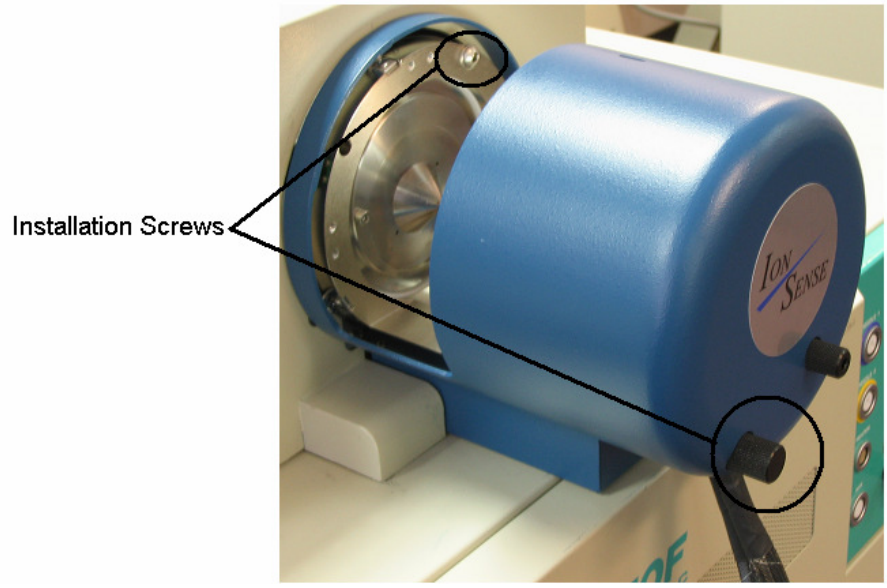
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Installation of DART Source and Power Supply:

1. Place the DART ring flange flush against the Ion Source Interface.

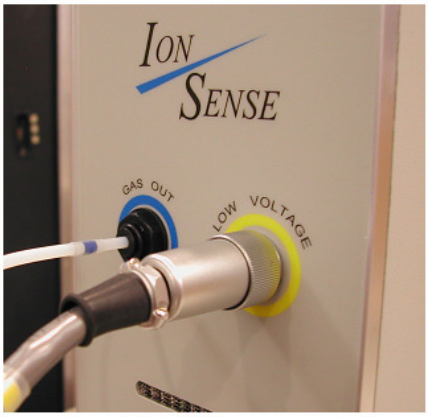


2. Fasten the DART to the interface using the two installation screws.
    a. Use a 4mm Allan wrench for upper screw



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3. Plug the high and low voltage cables and gas tubing from the source into the external power supply.





4. Connect external helium, nitrogen, and auxiliary (if being used) gas sources to gas inlets using Teflon gas line provided.
    a. Keep external gas sources closed until DART software is up and running and gas flow through the DART can be controlled.



5. Connect power supply to computer using USB cable provided.



6. Plug power cord into back of power supply and then to external outlet.
    a. Flip power switch to turn on power supply
    b. Power LED on front of power supply should light up, as well as eight high/low voltage LED's on back.

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