Thermo Scientific

Dionex Aquion Ion Chromatography System

Installation Instructions

22176-97002 Revision 01 February 2016

Thermo SCIENTIFIC

Release history: Revision 01 released February 2016; initial release of instrument

Software version: Chromeleon 7.2 SR4 and later

For Research Use Only. Not for use in diagnostic procedures.

Contents

Preface

This manual provides instructions for the initial and successful installation of the Thermo Scientific™ Dionex™ Aquion Ion Chromatography System. Follow the installation instructions in this manual, in the order presented.

Contents

Related Documentation

In addition to this manual, these related documents are provided on the Thermo Scientific Reference Library DVD (P/N 60-053891):

- *Dionex Aquion Ion Chromatography System Operator's Manual* (Document No. 22176-97003)
- *Dionex AS-AP Autosampler Operator's Manual* (Document No. 065361)
- *Dionex AS-DV Autosampler Operator's Manual* (Document No. 065259)
- Manuals for consumable products (columns, suppressors, CR-TC)
- *Chromeleon 7 Installation Guide* (Document No. 7229.0003)

Safety Information

The Dionex Aquion was manufactured by Thermo Fisher Scientific at the following location: Thermo Finnigan LLC 355 River Oaks Parkway, San Jose, CA 95134 USA. The Dionex Aquion is designed for IC (ion chromatography) applications and should not be used for any other purpose. Operation of a Dionex Aquion in a manner not specified by Thermo Fisher Scientific may result in personal injury.

If there is a question regarding appropriate usage, contact Technical Support for Dionex products. In the U.S. and Canada, call 1-800-532-4752. Outside the U.S. and Canada, call the nearest Thermo Fisher Scientific office.

Safety and Special Notices

Follow the cautions and special notices in this guide. Cautions and special notices appear in boxes; those concerning safety or possible system damage also have corresponding caution symbols.

This guide uses the following types of cautions and special notices.

CAUTION Highlights hazards to humans, property, or the environment. Each CAUTION notice is accompanied by an appropriate CAUTION symbol.

IMPORTANT Highlights information necessary to prevent damage to the system or software, loss of data, or invalid test results; or might contain information that is critical for optimal performance of the system.

Note Highlights information of general interest.

Tip Highlights helpful information that can make a task easier.

Safety Symbols

These symbols appear on the Dionex Aquion or on labels affixed to the system:

Alternating current

Primary protective conductor terminal

Secondary protective conductor terminal

Power supply is on

Power supply is off

Indicates a potential hazard. Refer to this manual for an explanation of the hazard and how to proceed.

Regulatory Compliance

Thermo Fisher Scientific performs complete testing and evaluation of its products to ensure full compliance with applicable domestic and international regulations. When the system is delivered to you, it meets all pertinent electromagnetic compatibility (EMC) and safety standards as described in the next section or sections by product name.

Changes that you make to your system may void compliance with one or more of these EMC and safety standards. Changes to your system include replacing a part or adding components, options, or peripherals not specifically authorized and qualified by Thermo Fisher Scientific. To ensure continued compliance with EMC and safety standards, replacement parts and additional components, options, and peripherals must be ordered from Thermo Fisher Scientific or one of its authorized representatives.

The NRLT on the model/data label of the Dionex Aquion Ion Chromatography System indicates that the system is in compliance with the following Safety and EMC standards:

- EN 61010-1:2010
- UL 61010-1:2012
- CAN/CSA-C22.2 No. 61010-1-12
- EN 61326-1:2013

The CE mark on the model/data label of the Dionex Aquion Ion Chromatography System indicates that the system is in compliance with the following European Community Directives as is evidenced by compliance to the associated standard where appropriate:

- Low Voltage/Safety Directive: 2014/35/EU by conforming to EN61010-1:2013 (3rd edition)
- EMC Directive: 2014/30/EU by conforming to EN61326-1:2013 (3rd edition)

Notice on Lifting and Handling of Thermo Scientific Instruments

For your safety, and in compliance with international regulations, the physical handling of this Thermo Fisher Scientific instrument ***requires a team effort*** to lift and/or move the instrument. This instrument is too heavy and/or bulky for one person alone to handle safely.

Notice on the Proper Use of Thermo Scientific Instruments

In compliance with international regulations: This instrument must be used in the manner specified by Thermo Fisher Scientific to ensure protections provided by the instrument are not impaired. Deviations from specified instructions on the proper use of the instrument include changes to the system and parts replacement. Accordingly, order replacement parts from Thermo Fisher Scientific or one of its authorized representative.

Notice on the Susceptibility to Electromagnetic Transmission

Your instrument is designed to work in a controlled electromagnetic environment. Do not use radio frequency transmitters, such as mobile phones, in close proximity to the instrument.

For manufacturing location, see the label on the instrument.

WEEE Compliance

This product complies with the European Union's Waste Electrical & Electronic Equipment (WEEE) Directive 2002/96/EC. It is marked with the following symbol:

Thermo Fisher Scientific is registered with B2B Compliance (B2Bcompliance.org.uk) in the UK and with the European Recycling Platform (ERP-recycling.org) in all other countries of the European Union and in Norway.

If this product is located in Europe and you want to participate in the Thermo Fisher Scientific Business-to-Business (B2B) Recycling Program, send an email request to weee.recycle@thermofisher.com with the following information:

- WEEE product class
- Name of the manufacturer or distributor (where you purchased the product)
- Number of product pieces, and the estimated total weight and volume
- Pick-up address and contact person (include contact information)
- Appropriate pick-up time
- Declaration of decontamination, stating that all hazardous fluids or material have been removed from the product

For additional information about the Restriction on Hazardous Substances (RoHS) Directive for the European Union, search for RoHS on the Thermo Fisher Scientific European language websites.

Conformité DEEE

Ce produit est conforme avec la directive européenne (2002/96/EC) des Déchets d'Equipements Electriques et Electroniques (DEEE). Il est marqué par le symbole suivant:

Thermo Fisher Scientific s'est associé avec une ou plusieurs sociétés de recyclage dans chaque état membre de l'Union Européenne et ce produit devrait être collecté ou recyclé par celle(s)-ci. Pour davantage d'informations, rendez-vous sur la page www.thermoscientific.fr/rohs.

WEEE Konformität

Dieses Produkt entspricht der EU Waste Electrical & Electronic Equipment (WEEE) Richtlinie 2002/96/EC. Es ist mit dem folgenden Symbol gekennzeichnet:

Thermo Fisher Scientific hat Vereinbarungen mit Verwertungs-/Entsorgungsfirmen in allen EU-Mitgliedsstaaten getroffen, damit dieses Produkt durch diese Firmen wiederverwertet oder entsorgt werden kann. Weitere Informationen finden Sie unter www.thermoscientific.de/rohs.

Deionized Water Requirements for IC

For eluent generation or when manually preparing eluent and regenerant, use ASTM Type I (18 megohm-cm) filtered and deionized water that meets the specifications listed in Table 1.

Table 1. ASTM filtered, Type I deionized water specifications for ion chromatography

Contaminant	Specification
Ions–Resistivity	>18.0 (megohm-cm)
Organics–TOC	<10 ppb
Iron/Transition Metals*	<1 ppb
Pyrogens	<0.03 (Eu/mL)
Particulates > 0.2 µm	<1 (units/mL)
Colloids–Silica	<10 ppb
Bacteria	<1 (cfu/mL)
* Iron/transition metal content not specified for ASTM Type I water	

Contacting Us

❖ **For Technical Support for Dionex products**

In the U.S. and Canada, call 1-800-532-4752.

Outside the U.S. and Canada, call the nearest Thermo Fisher Scientific office.

❖ **For additional contact information**

Go to www.thermoscientific.com/Dionex.

CAUTION Symbol	CAUTION	VORSICHT	PRECAUCIÓN	MISE EN GARDE
	**Risk electric shock:** This instrument uses voltages that can cause electric shock and/or personal injury. Before servicing, shut down the instrument and disconnect it from line power. While operating the instrument, keep covers on. Do not remove the protective covers from the printed circuit board assemblies (PCBAs).	**Stromschlaggefahr:** Dieses Gerät arbeitet mit Spannungen, die Stromschläge und/oder Personenverletzungen verursachen können. Vor Wartungsarbeiten muss das Gerät abgeschaltet und vom Netz getrennt werden. Betreiben Sie das Gerät nicht mit abgenommenen Abdeckungen. Nehmen Sie die Schutzabdeckungen von Leiterplatten nicht ab.	**Riesgo de descargas eléctricas:** Este instrumento utiliza voltajes que pueden causar descargas eléctricas y/o lesiones personales. Antes de revisar o reparar el instrumento, apáguelo y desconéctelo de la red eléctrica. Mantenga colocadas las cubiertas mientras se utiliza el instrumento. No retire las cubiertas protectoras del circuito impreso completo (PCBA).	**Risque de choc électrique :** l'instrument utilise des tensions susceptibles de provoquer une électrocution et/ou des blessures corporelles. Il doit être arrêté et débranché de la source de courant avant toute intervention. Ne pas utiliser l'instrument sans ses couvercles. Ne pas enlever les capots de protection des cartes à circuit imprimé (PCBA).
	**Chemical hazard:** Wear gloves and other protective equipment, as appropriate, when handling toxic, carcinogenic, mutagenic, corrosive, or irritant chemicals. Use approved containers and proper procedures to dispose of waste oil and when handling wetted parts of the instrument.	**Gefahr durch Chemikalien:** Tragen Sie beim Umgang mit toxischen, karzinogenen, mutagenen, ätzenden oder reizenden Chemikalien Schutzhandschuhe und weitere geeignete Schutzausrüstung. Verwenden Sie bei der Entsorgung von verbrauchtem Öl und beim Umgang mit medienberührenden Komponenten die vorgeschriebenen Behälter, und wenden Sie ordnungsgemäße Verfahren an.	**Peligro por sustancias químicas:** Cuando manipule sustancias químicas, tóxicas, carcinogénicas, mutágenas, corrosivas o irritantes, utilice guantes y otro equipo de protección. Utilice siempre recipientes homologados y siga los procedimientos adecuados cuando deseche aceite residual o manipule partes mojadas del instrumento.	**Danger lié aux produits chimiques :** porter des gants et d'autres équipements de protection appropriés pour manipuler les produits chimiques toxiques, cancérigènes, mutagènes, corrosifs ou irritants. Utiliser des récipients homologués et des procédures adéquates pour la mise au rebut des huiles usagées et lors de la manipulation des pièces de l'instrument en contact avec l'eau.
	**Hot surface:** Before touching, allow any heated components to cool.	**Heiße Oberflächen:** Lassen Sie heiße Komponenten vor der Berührung abkühlen.	**Superficies calientes:** Antes de tocar los componentes calientes, espere a que se enfríen.	**Surface chaude :** laisser refroidir les composants chauffés avant toute manipulation.
	**Flammable substances hazard:** Use care when operating the system in the presence of flammable substances.	**Gefahr durch entzündbare Substanzen:** Beachten Sie die einschlägigen Vorsichtsmaßnahmen, wenn Sie das System in Gegenwart von entzündbaren Substanzen betreiben.	**Peligro por sustancias inflamables:** Tenga mucho cuidado cuando utilice el sistema cerca de sustancias inflamables.	**Danger lié aux substances inflammables :** agir avec précaution lors de l'utilisation du système en présence de substances inflammables.
	**Risk of eye injury:** Eye injury could occur from splattered chemicals, airborne particles, or sharp objects. (Sharp objects that customers might install in the instrument include fused-silica tubing, the autosampler needle, and so on.) Wear safety glasses when handling chemicals or servicing the instrument.	**Augenverletzungsrisiko:** Verspritzte Chemikalien, Schwebstoffpartikel oder scharfe Objekte können Augenverletzungen verursachen. (Scharfe Objekte, die Kunden möglicherweise im Gerät installieren, sind z. B. Quarzglas-Kapillaren, die Nadel des Autosamplers, usw.) Tragen Sie beim Umgang mit Chemikalien oder bei der Wartung des Gerätes eine Schutzbrille.	**Riesgo de lesiones oculares:** Las salpicaduras de sustancias químicas, las partículas flotantes en el aire y los objetos afilados pueden causar lesiones oculares. (Entre los objetos afilados que los clientes pueden instalar en el instrumento se encuentran tubos de sílice fundida, agujas del muestreador automático, etc.). Para manipular sustancias químicas o realizar tareas de mantenimiento, utilice gafas de seguridad.	**Risque de lésion oculaire :** les projections chimiques, les particules en suspension dans l'air et les objets tranchants peuvent entraîner des lésions oculaires. (Les objets tranchants pouvant être installés par les clients dans l'instrument comprennent les tubes en silice fondue, les aiguilles du passeur automatique, etc.). Porter des lunettes de protection lors de toute manipulation de produit chimique ou intervention sur l'instrument.
	**General hazard:** A hazard is present that is not included in the other categories. This symbol also appears on the instrument. For details about the hazard, refer to the instrument manual. When the safety of a procedure is questionable, contact Technical Support for Thermo Scientific Sunnyvale products.	**Allgemeine Gefahr:** Es besteht eine weitere Gefahr, die nicht in den vorstehenden Kategorien beschrieben ist. Dieses Symbol wird auch auf dem Gerät angebracht. Einzelheiten zu dieser Gefahr finden Sie in den Gerätehandbüchern. Wenn Sie sich über die Sicherheit eines Verfahrens im Unklaren sind, setzen Sie sich, bevor Sie fortfahren, mit dem technischen Support für Thermo Scientific Sunnyvale Produkte in Verbindung.	**Peligro general:** Existen peligros que no se incluyen en las otras categorías. Este símbolo también aparece en el instrumento. Si desea obtener más información sobre estos peligros, consulte el manual del instrumento. En caso de duda sobre la seguridad de un procedimiento, póngase en contacto con el personal de servicio técnico de los productos Thermo Scientific Sunnyvale.	**Danger d'ordre général :** indique la présence d'un risque n'appartenant pas aux catégories citées plus haut. Ce symbole figure également sur l'instrument. Pour plus de détails sur ce danger potentiel, se reporter au manuel de l'instrument. Si la sûreté d'une procédure est incertaine, contacter l'assistance technique pour les produits Thermo Scientific Sunnyvale.

CAUTION Symbol	CAUTION	VORSICHT	PRECAUCIÓN	MISE EN GARDE
	**Laser hazard:** This instrument uses a laser that is capable of causing personal injury. This symbol also appears on the instrument. For details about the hazard, refer to the instrument manual.	**Gefahr durch Laserstrahlen:** Der in diesem Gerät verwendete Laser kann zu Verletzungen führen. Dieses Symbol wird auch auf dem Gerät angebracht. Einzelheiten zu dieser Gefahr finden Sie in den Gerätehandbüchern.	**Peligro por láser:** Este instrumento utiliza un láser que puede producir lesiones personales. Este símbolo también aparece en el instrumento. Si desea obtener más información sobre el peligro, consulte el manual del instrumento.	**Danger lié au laser :** l'instrument utilise un laser susceptible de provoquer des blessures corporelles. Ce symbole figure également sur l'instrument. Pour plus de détails sur ce danger potentiel, se reporter au manuel de l'instrument.
	**Ultra violet light hazard:** Do not look directly at the ultra-violet (UV) light or into the UV source. Exposure can cause eye damage. Wear UV eye protection.	**Gefahr durch UV-Licht:** Richten Sie Ihren Blick nicht direkt auf ultraviolettes Licht (UV-Licht) oder in die UV-Quelle. Dies kann zu Augenschäden führen. Tragen Sie eine UV-Schutzbrille.	**Peligro por luz ultravioleta:** No mire directamente a una luz ultravioleta (UV) ni a una fuente UV. La exposición puede causar daños oculares. Lleve protección ocular para UV.	**Danger lié aux rayons ultraviolets :** ne jamais regarder directement la lumière ultraviolette (UV) ou la source d'UV. Une exposition peut entraîner des lésions oculaires. Porter des protections oculaires anti-UV.
	**Sharp object:** Avoid physical contact with the object.	**Scharfes Objekt:** Vermeiden Sie den physischen Kontakt mit dem Objekt.	**Objeto puntiagudo:** Evite el contacto físico con el objeto.	**Objet tranchant :** éviter tout contact physique avec l'objet.
	**Pinch point:** Keep hands away from this area.	**Quetschgefahr:** Halten Sie Ihre Hände von diesem Bereich fern.	**Puntos de pinzamiento:** Mantenga las manos apartadas de esta área.	**Risque de pincement :** éloigner les mains de cette zone.
	**Heavy objects:** Never lift or move the instrument by yourself; you can suffer personal injury or damage the equipment. For specific lifting instructions, refer to the instrument manual.	**Schweres Objekt:** Bewegen und heben Sie das Gerät niemals allein an; dies kann zu Verletzungen oder zur Beschädigung des Geräts führen. Spezifische Anweisungen zum Anheben finden Sie im Gerätehandbuch.	**Objeto pesado:** Nunca levante ni mueva el instrumento por su cuenta, podría sufrir lesiones personales o dañar el equipo. Para obtener instrucciones específicas sobre levantamiento, consulte el manual del instrumento.	**Objet lourd :** ne jamais soulever ou déplacer l'instrument seul sous peine de blessure corporelle ou d'endommagement de l'instrument. Pour obtenir des instructions de levage spécifiques, se reporter au manuel de l'instrument.
	**Trip obstacle:** Be aware of cords, hoses, or other objects located on the floor.	**Stolpergefahr:** Achten Sie auf Kabel, Schläuche und andere Objekte auf dem Fußboden.	**Tropiezo con obstáculos:** Tenga en cuenta los cables, mangueras u otros objetos colocados en el suelo.	**Risque de trébuchement :** faire attention aux câbles, tuyaux et autres objets situés sur le sol.
	When the safety of a procedure is questionable, contact Technical Support for Thermo Scientific Sunnyvale products.	Wenn Sie sich über die Sicherheit eines Verfahrens im unklaren sind, setzen Sie sich, bevor Sie fortfahren, mit Ihrer lokalen technischen Unterstützungsorganisation für Thermo Scientific Sunnyvale Produkte in Verbindung.	En caso de duda sobre la seguridad de un procedimiento, póngase en contacto con el personal de servicio técnico de los productos Thermo Scientific Sunnyvale.	Si la sûreté d'une procédure est incertaine, contacter l'assistance technique pour les produits Thermo Scientific Sunnyvale.

CAUTION Symbol	CAUTION	警告	危险警告
	**Risk electric shock:** This instrument uses voltages that can cause electric shock and/or personal injury. Before servicing, shut down the instrument and disconnect it from line power. While operating the instrument, keep covers on. Do not remove the protective covers from the printed circuit board assemblies (PCBAs).	**感電の危険性**: この機器では、感電および / または身体傷害を引き起こすおそれのある電圧を使用しています。整備点検の前には、機器の電源を切り、電源コードを抜いてください。機器の作動中は、カバーを付けたままにしてください。プリント基板アセンブリ (PCBA) から保護カバーを取り外さないでください。	**触电危险：**本仪器所用电压可能导致电击或人身伤害。进行维修服务前，务必关闭仪器电源并断开其电源连接。操作此仪器时，不要卸下顶盖。勿卸下印刷电路板组件 （PCBA）的保护盖。
	**Chemical hazard:** Wear gloves and other protective equipment, as appropriate, when handling toxic, carcinogenic, mutagenic, corrosive, or irritant chemicals. Use approved containers and proper procedures to dispose of waste oil and when handling wetted parts of the instrument.	**化学的危険性**: 毒性、発癌性、変異原性、腐食性、または刺激性のある化学薬品を取り扱うときは、必要に応じて手袋などの保護具を着用します。廃油を処分したり、機器の接液部品を取り扱うときは、認可された容器を使用し、適切な手順に従います。	**化学品危险：**当处理毒性、致癌性、致突变性、腐蚀性或者刺激性化学品时，佩戴手套和其他保护性设备。当处理浸湿的仪器部件以及废油时，使用认可的容器和合适的步骤。
	**Hot surface:** Before touching, allow any heated components to cool.	**高温面**: 触れる前に、加熱した部品を冷ましてください。	**热表面：**待高温部件冷却之后再进行维修。
	**Flammable substances hazard:** Use care when operating the system in the presence of flammable substances.	**可燃性物質の危険性**: 可燃性物質があるところでシステムを作動させる場合は十分注意してください。	**易燃物危险：**在有易燃物质的场地操作该系统时，务必小心谨慎。
	**Risk of eye injury:** Eye injury could occur from splattered chemicals, airborne particles, or sharp objects. (Sharp objects that customers might install in the instrument include fused-silica tubing, the autosampler needle, and so on.) Wear safety glasses when handling chemicals or servicing the instrument.	**眼外傷の危険性**: 飛散した化学薬品、浮遊粒子、または鋭利な物体によって眼外傷を負うおそれがあります (機器に取り付けられる可能性がある鋭利な物体は、ヒューズドシリカ、オートサンプラーニードルなどです)。化学薬品を取り扱ったり、機器を整備点検するときは、保護メガネを着用します。	**眼睛伤害风险：**眼睛受伤可能源自飞溅的化学品、空气中的颗粒，或者锋利的物体。（安装在仪器内的锋利物体包括熔融石英管、自动进样器的进样针等。）处理化学品或对仪器进行维修服务时，务必戴上防护眼镜。
	**General hazard:** A hazard is present that is not included in the other categories. This symbol also appears on the instrument. For details about the hazard, refer to the instrument manual. When the safety of a procedure is questionable, contact Technical Support for Thermo Scientific Sunnyvale products.	**一般的な危険性**: それぞれのカテゴリーに当てはまらない危険があります。この標識記号は機器にも表示されています。この危険の詳細については、機器のマニュアルを参照してください。 手順の安全性にご不明な点がある場合は、Thermo Scientific Sunnyvale 製品のテクニカルサポートまでお問い合わせください。	**普通危险：**未归入其他类别的危险。此符号也会在仪器上出现。有关此危险的详细信息，参阅适当的仪器手册。若对任何步骤的安全事项有疑问，联系 Thermo Scientific Sunnyvale 产品的技术支持中心。

CAUTION Symbol	CAUTION	警告	危险警告
	**Laser hazard:** This instrument uses a laser that is capable of causing personal injury. This symbol also appears on the instrument. For details about the hazard, refer to the instrument manual.	**レーザー光線の危険性**: この機器では、身体傷害を引き起こすおそれのあるレーザーを使用しています。この標識記号は機器にも表示されています。この危険の詳細については、機器のマニュアルを参照してください。	**激光危险：**本仪器所用激光会导致人身伤害。此符号也会在仪器上出现。有关此危险的详细信息，参阅适当的仪器手册。
	**Ultra violet light hazard:** Do not look directly at the ultra-violet (UV) light or into the UV source. Exposure can cause eye damage. Wear UV eye protection.	**紫外光の危険性**: 紫外 (UV) 光または UV 光源を直接見ないでください。照射によって眼損傷を引き起こすおそれがあります。UV 保護メガネを着用します。	**紫外光危险：**不要直视紫外 （UV）光或者紫外光源。直视可能导致眼睛伤害。佩戴紫外线防护眼镜。
	**Sharp object:** Avoid physical contact with the object.	**鋭利な物体**: 物体との身体的接触を避けてください。	**锋利物体：**避免直接接触锋利的物体。
	**Pinch point:** Keep hands away from this area.	**ピンチポイント**: この部分には手を挟まれないようにしてください。	**夹点：**勿将手放在此部位。
	**Heavy objects:** Never lift or move the instrument by yourself; you can suffer personal injury or damage the equipment. For specific lifting instructions, refer to the instrument manual.	**重量物**:1 人で機器を持ち上げたり移動しないでください。身体傷害を負ったり、機器を損傷するおそれがあります。具体的な持ち上げ方法については、機器のマニュアルを参照してください。	**重物：**切勿独自提起或移动本仪器；可能遭受人身伤害或损坏仪器。有关具体的提起说明，参阅仪器手册。
	**Trip obstacle:** Be aware of cords, hoses, or other objects located on the floor.	**作業の障害物**: 床にあるコード、ホース、その他の物体に注意してください。	**绊倒危险：**注意地面上的线、管或其他物品。
	When the safety of a procedure is questionable, contact Technical Support for Thermo Scientific Sunnyvale products.	手順の安全性にご不明な点がある場合は、Thermo Scientific Sunnyvale 製品のテクニカルサポートまでお問い合わせください。	如对安全程序有疑问，联系 Thermo Scientific Sunnyvale 产品的技术支持中心。

Unpacking Instructions

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Unpacking the Dionex Aquion

CAUTION Two or more persons must lift the Dionex Aquion, which weighs more than 23 kg (50 lb). Lift the Dionex Aquion only from each side of the cabinet bottom. Lifting from the front door will damage the door hinges.

MISE EN GARDE Au moins deux personnes doivent soulever le Dionex Aquion, qui pèse plus de 23 kg (50 lb). Ne soulevez le Dionex Aquion que par chaque côté du fond de l'appareil. Son soulèvement par la porte du panneau avant endommagera les charnières de la porte.

VORSICHT Der Dionex Aquion wiegt über 23 kg. Daher darf das Gerät nur von zwei oder mehr Personen angehoben werden. Greifen Sie dazu an beiden Seiten unter das Gerät. Wenn Sie den Dionex Aquion an der Vordertür anheben, werden die Scharniere der Tür beschädigt.

1. Open the shipping box and remove the top layer of foam (see Figure 1).

Figure 1. Shipping box open

2. Open the plastic bag that covers the system (see Figure 2).

Figure 2. Dionex Aquion enclosed in bag

3. Set the eluent bottle on top of the system (see Figure 3).

Figure 3. Dionex Aquion with eluent bottle

4. Remove the next layer of foam (see Figure 4).

Figure 4. Shipping box with middle layer of foam removed

5. Lift the module from the seating/cavity of the foam to the top of the foam. Reach down to the bottom of the module and lift it from the foam out of the box. Set it on a workbench.
6. Inspect the system for any shipping damage. Save the shipping container and all packing material. You will need them in the future if the system is shipped.

Unpacking the PC

1. Remove the PC and all documentation from the PC box and place them on a workbench.
2. Follow the instructions in the PC installation guide to connect the PC components.

2

System Setup

This chapter provides instructions for setting up the Dionex Aquion and Thermo Scientific™ Dionex™ Chromeleon™ 7 Chromatography Data System software. These instructions apply to systems configured with a conductivity detector. After completing the setup steps, see to the plumbing instructions for your detection type.

Contents

Facility Requirements

CAUTION Do not pressurize the eluent reservoir above 0.07 MPa (10 psi).

MISE EN GARDE Ne mettez jamais les réservoirs d'éluants sous une pression supérieure à 0,07 MPa (10 lb/po²).

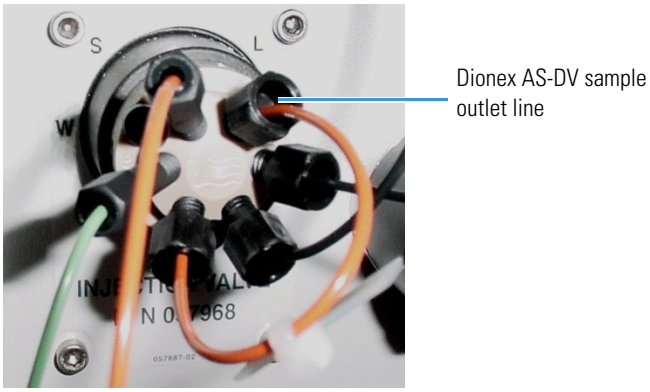
VORSICHT Setzen Sie den Eluentbehälter auf keinen Fall einem Druck über 0,07 MPa aus.

- Verify that the installation site meets these environmental specifications:
  - **Main Power**: 100 to 240 Vac, 50 to 60 Hz (auto-sensing power supply; no manual voltage or frequency adjustment required)
  - **Operating Temperature**: 4 to 40 °C (40 to 104 °F)
  - **Humidity**: 5% to 95% relative humidity, noncondensing
- Provide a sturdy workbench for the system. The workbench should be high enough to allow convenient access to the interior of the Dionex Aquion.
- Allow at least 15 cm (6 in) behind the system for power connections and ventilation. For optimal performance, install the system in a draft-free location, out of the path of air conditioning and heating vents.
- Use ASTM filtered, Type I (18-megohm) deionized water when preparing eluent and regenerant (see "Deionized Water Requirements for IC" on page viii).
- (Optional) For pressurization of the eluent reservoir, provide a clean gas source regulated to between 0.55 and 0.83 MPa (80 and 120 psi). An air regulator accessory (P/N 060054) is required to regulate the pressure to between 0.03 and 0.04 MPa (5 and 6 psi).

Connecting a Dionex AS-DV Autosampler

1. Place the Thermo Scientific™ Dionex™ AS-DV Autosampler to the left of the Dionex Aquion on the workbench.
2. Open the Dionex Aquion and the autosampler doors.
3. Route the sample outlet line from the Dionex AS-DV through the left side slot, at the front of the IC system.
4. Connect the outlet sample line from the Dionex AS-DV to port **S (5)** on the injection valve (see Figure 5).

Figure 5. Dionex AS-DV injection valve



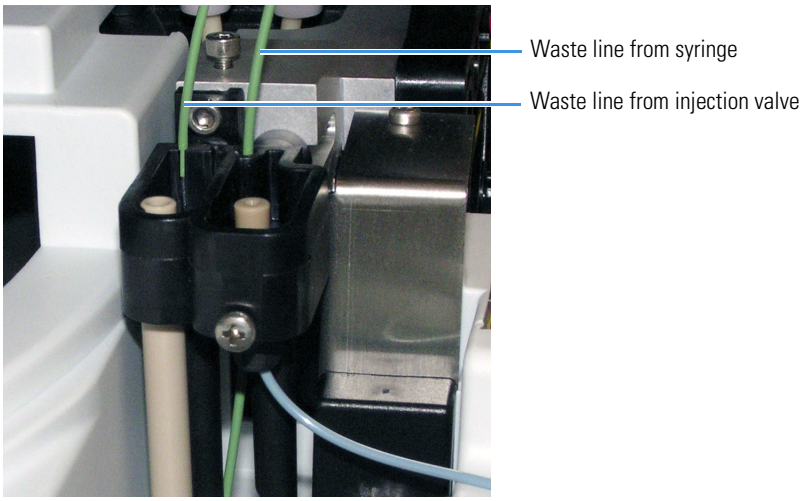
Connecting a Dionex AS-AP Autosampler

1. Locate the system tubing package supplied with the injection valve. One tubing package with precut and labeled tubing (microbore or standard bore) is provided for each valve installed in the Dionex Aquion.
2. In the system tubing assembly bag, locate the 0.75 mm (0.030 in) ID green PEEK™ tubing assembly, labeled **TO INJ VALVE-W**.

Note To improve sample loading precision in analytical systems, add a 51 cm (20 in) piece of black PEEK tubing to the green waste line.

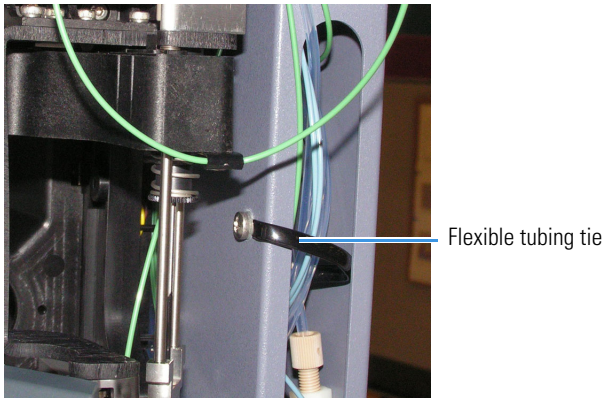
3. Connect one end of the waste line to port 6 (labeled **W**) on the injection valve.
4. Route the line to the Dionex AS-AP waste port and insert the line into one of the round openings in the waste port (see Figure 6).

Figure 6. Injection valve waste line installed in Dionex AS-AP waste port



5. To verify that the waste lines do not interfere with needle arm movement in the Dionex AS-AP, secure the excess tubing with the flexible tubing tie in the slotted compartment next to the needle (see Figure 7).

Figure 7. Flexible tubing tie in Dionex AS-AP slotted compartment



Setting Up Chromeleon

Software setup consists of installing Chromeleon software and the software license on the computer, starting the Chromeleon Instrument Controller Service, installing the USB device driver, and configuring the system in Chromeleon.

❖ To install the Chromeleon software and license

For instructions on how to install the Chromeleon software and license (if they were not installed at the factory), refer to *Chromeleon 7 Installation Guide*. The guide is provided on the Thermo Scientific Reference Library DVD (P/N 60-053891).

❖ To start the Chromeleon Instrument Controller Service

If you have not already done so, turn on the computer power and log on to Windows as a user with local computer administrator privileges.

❖ To start the Instrument Controller Service

Right-click the Chromeleon tray icon  in the notification area of the Windows taskbar and click **Start Chromeleon Instrument Controller**. The icon changes to gold  to indicate that the Instrument Controller Service is starting. When the Instrument Controller Service is running (idle), the icon changes to gray  .

–or–

If the Chromeleon tray icon is not on the Windows taskbar, click **Start > All Programs > Thermo Chromeleon 7 > Services Manager** and click **Start Instrument Controller**.

❖ To enable automatic Instrument Controller start

1. Right-click the Chromeleon tray icon and click **Show Chromeleon Services Manager**. The Chromeleon Services Manager dialog box appears.
2. Select the **Start service on system start** check box.

Note To enhance system performance, Thermo Fisher Scientific recommends having Chromeleon automatically start the Instrument Controller every time the computer is turned on.

❖ To install the USB device driver

IMPORTANT Before proceeding, verify that:

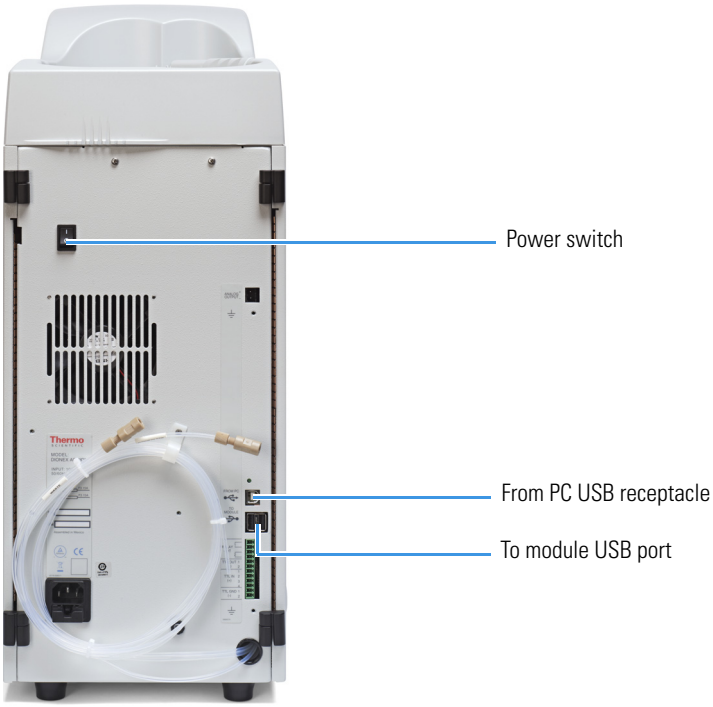
- Chromeleon was installed on the computer and the software license code was entered.
- The suppressor included with the system is plugged in.

1. Flip the power switch on the rear panel of the Dionex Aquion to turn on the power.
2. If the system includes an autosampler, turn on the autosampler power.
3. Windows automatically detects the new USB devices. A message appears on the screen that new hardware was found.

Connecting to the Chromeleon PC

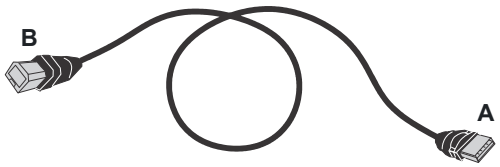
The Dionex Aquion rear panel provides a USB receptacle for connecting to a USB port on the Chromeleon PC. The rear panel also provides two USB ports for connecting other Dionex USB-compliant modules to the system (see Figure 8).

Figure 8. Dionex Aquion rear panel



All USB connections described here require standard A-to-B cables (see Figure 9).

Figure 9. USB A-to-B cable



IMPORTANT

- The USB standard limits the USB cable length to 5 m (5.5 yds). Each USB device can be separated from the computer by no more than five hubs. Thus, each USB device can be located no more than 30 m (32 yds) from the PC.
- Before connecting the USB cables, verify that Chromeleon is installed on the PC and the license code entered. If the chromatography software is not installed first, Windows will be unable to identify the new USB device when the power is turned on.
- Do not turn on the power to the Dionex Aquion or other USB module(s) until you connect the USB cable.

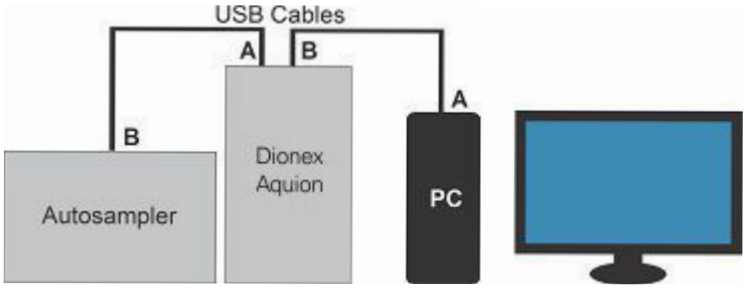
You can connect the system directly to a USB port on the Chromeleon computer or to a USB 2.0 external hub that is connected to the computer. Use an external hub when:

- The number of USB devices in the system exceeds the number of available USB ports.
- The Dionex Aquion is more than 5 m (5.5 yds) from the PC.

❖ To connect the Dionex Aquion to the PC

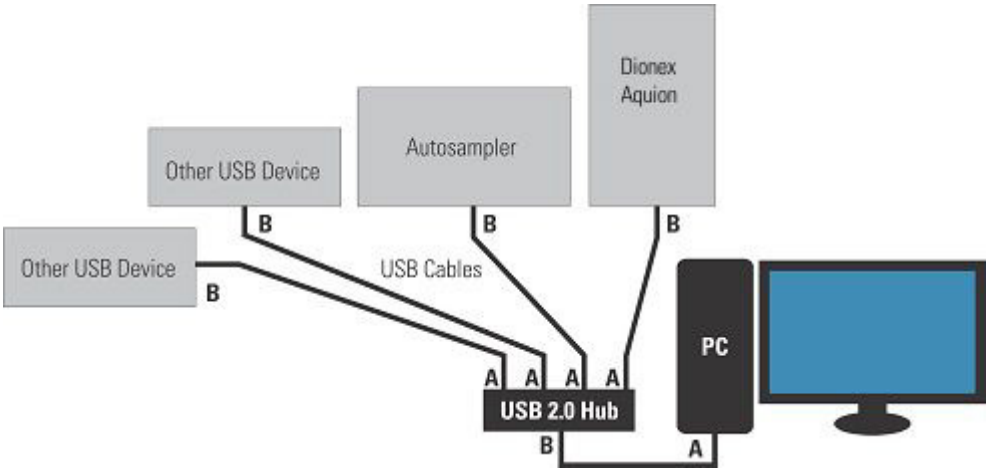
1. Locate the USB cable (P/N 960777) in the Dionex Aquion Ship Kit (P/N 075161).
2. To connect directly to the computer, connect the USB cable between the USB connector on the Dionex Aquion rear panel (see Figure 8) and a USB port on the Chromeleon computer.

   Figure 10. Example USB connections: System connected directly to the computer

   To connect using an external hub, connect the USB cable to the hub and connect the hub to the computer. For installation details, refer to the manual provided by the hub vendor.

Figure 11. Example USB connections: System connected to an external hub



1. If you are installing an autosampler, locate the USB cable supplied with the autosampler. Connect the cable between the USB connector on the autosampler and either a USB port on the Dionex Aquion or the external hub.

IMPORTANT Carefully secure all USB cables, the external hub (if used), and the hub power cable so that they cannot be accidentally disconnected.

❖ To correct a USB configuration error (if necessary)

If the USB cable was connected and the power turned on before Chromeleon was installed, a Windows message box may open asking for a USB configuration file (cmwdmusb.inf).

1. Click **Cancel** in the Windows message box.
2. Turn off the power to the USB device and unplug the USB cable from the computer.
3. Install Chromeleon (see "Setting Up Chromeleon" on page 8).
4. Reconnect the USB cable to the computer and turn on the power to the device.

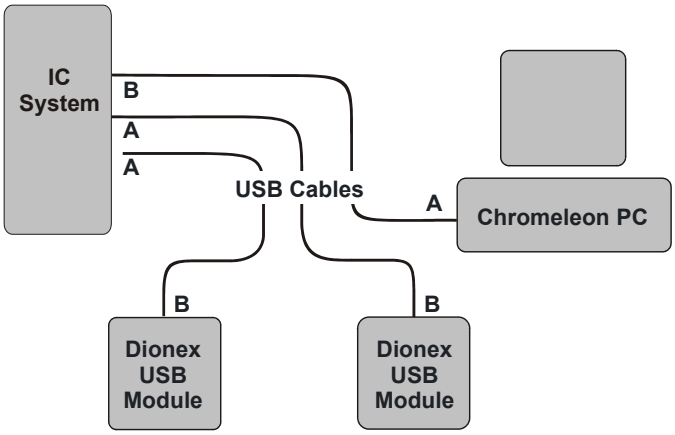
Windows will now automatically recognize the USB device.

❖ To connect additional USB devices

Two USB ports on the Dionex Aquion rear panel (see Figure 8) are provided for connecting additional Dionex USB-compliant modules, such as an autosampler, to the system.

1. Plug the "A" connector on a USB cable into the "A" port (labeled **TO MODULE**) on the Dionex Aquion rear panel (see Figure 8).
2. Plug the "B" connector into the USB receptacle on the other USB module (see Figure 12).

Figure 12. Example USB connections: Two USB modules connected to the IC system



Connecting the Dionex Aquion Power Cord

1. Verify that the main power switch on the Dionex Aquion rear panel (see Figure 8) is turned off. (The main power switch may be turned on accidentally when the system is unpacked.)
2. Connect the power cord (IEC 320 C13) (ordered separately) from the main power receptacle on the rear panel to a grounded power source. The IC system power supply is auto-sensing, so no adjustment is required to select the line voltage.

WARNING SHOCK HAZARD—To avoid electrical shock, use a grounded receptacle. Do not operate the IC system or connect it to AC power mains without an earthed ground connection.

CAUTION The power supply cord is used as the main disconnect device. Verify that the socket-outlet is near the IC system and is easily accessible.

CAUTION Operation at AC input levels outside of the specified operating voltage range may damage the IC system.

AVERTISSEMENT DANGER D'ÉLECTROCUTION—Pour éviter toute électrocution, il faut utiliser une prise de courant avec prise de terre. Ne l'utilisez pas et ne le branchez pas au secteur C.A. sans utiliser de branchement mis à la terre.

MISE EN GARDE Le cordon d'alimentation principal est utilisé comme dispositif principal de débranchement. Veillez à ce que la prise de base soit située/installée près du module et facilement accessible.

WARNUNG STROMSCHLAGGEFAHR—Zur Vermeidung von elektrischen Schlägen ist eine geerdete Steckdose zu verwenden. Das Gerät darf nicht ohne Erdung betrieben bzw. an Wechselstrom angeschlossen werden.

VORSICHT Das Netzkabel ist das wichtigste Mittel zur Stromunterbrechung. Stellen Sie sicher, daß sich die Steckdose nahe am Gerät befindet und leicht zugänglich ist.

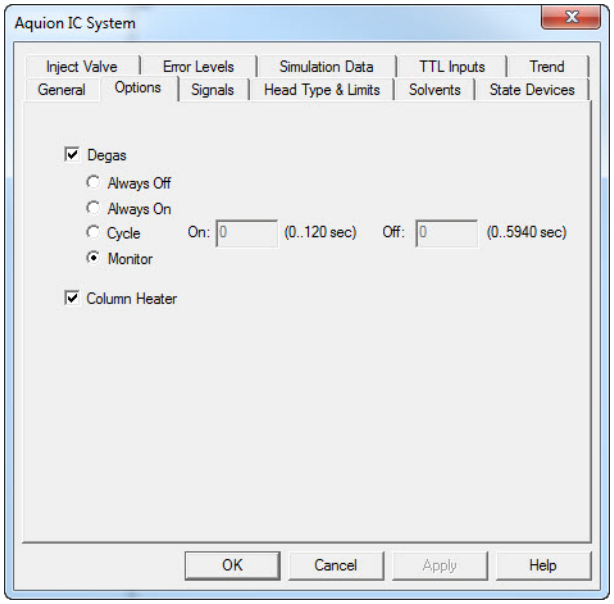
Configuring the Device Properties and Verifying Communication

This section provides brief instructions for setting up Chromeleon. For details about these steps, refer to the Chromeleon Help.

❖ To configure the device properties

1. On the Windows taskbar, click **Start > All Programs > Thermo Chromeleon 7 > Instrument Configuration Manager** to open the Instrument Configuration Manager.
2. Click the plus (+) sign next to **Aquion** to expand the tree structure.
3. Right-click **Aquion IC System** to open a menu, and click **Properties** to open the Properties dialog box for the module.
4. Click the **Options** tab and verify that the options installed in your IC system are enabled.

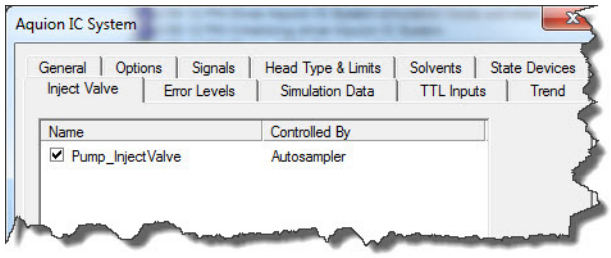
   Figure 13. Example of Aquion IC System Properties dialog box: Options tab page



5. Click the **Inject Valve** tab and verify that the correct device is assigned to control the injection valve in the Dionex Aquion.

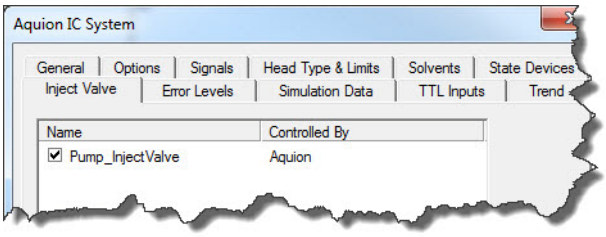
- If the instrument will include an autosampler, the Controlled By setting for Pump_InjectValve must be **Autosampler** (see Figure 14).

  Figure 14. Inject valve properties: Inject valve controlled by the Dionex AS-DV

- If the instrument will not include an autosampler, the Controlled By setting must be **Aquion** (see Figure 15).

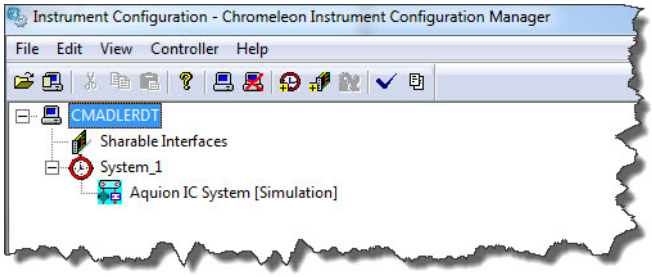
  Figure 15. Inject valve properties: Inject valve controlled by the Dionex Aquion

- To change a Controlled By setting, select the **Pump_InjectValve** name, press **F2**, and select the device.

6. After selecting the device properties, click **OK** to close the dialog box. The IC system is added to the instrument (see Figure 16).

   Figure 16. Example Instrument Configuration Manager with Dionex Aquion added

7. If you are configuring an autosampler, add the autosampler to the instrument as described for the IC system.

8. When the instrument configuration is complete, select **File > Save Installation**.

   You can ignore the "No inject device installed" warning, if it appears. This means that the instrument does not include an autosampler. This message appears if you are using manual injections.

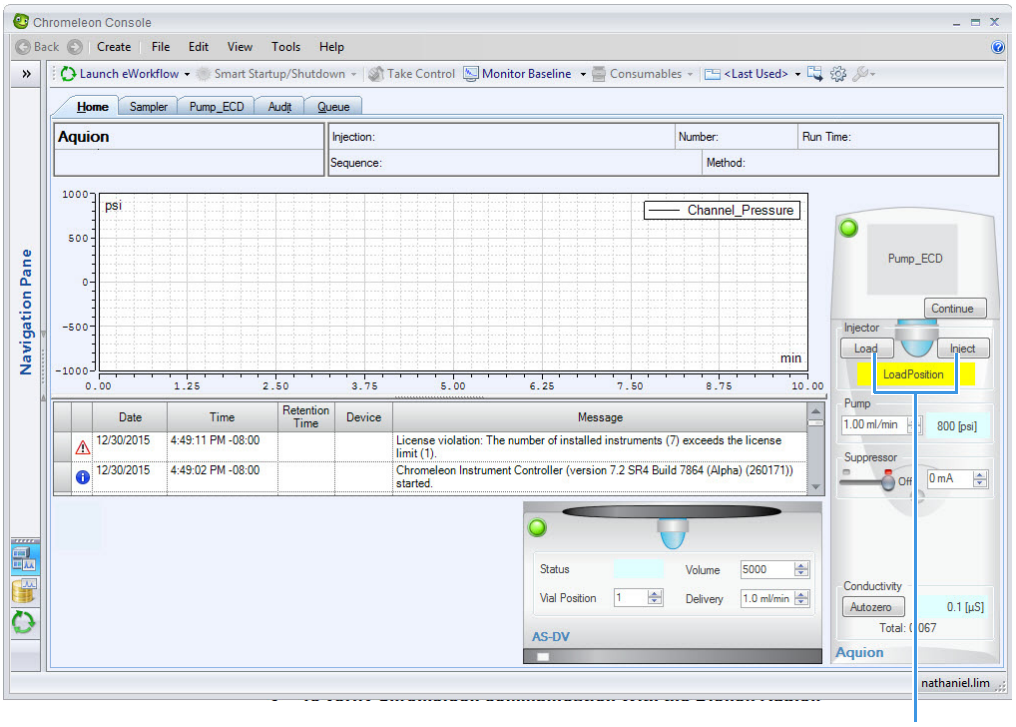
9. Close the Instrument Configuration Manager.

❖ To display the ePanel Set

1. On the Windows taskbar, click **Start > All Programs > Thermo Chromeleon 7 > Chromeleon 7** to start the Chromeleon client.
2. In the Console Navigation pane, select the name of the instrument in which the Dionex Aquion is configured. Chromeleon connects to the instrument and displays the ePanel Set (see Figure 17).

Note If an autosampler is installed, the ePanel Set includes a separate ePanel for the autosampler.

Figure 17. Example Chromeleon ePanel Set



❖ To verify Chromeleon communication with the Dionex Aquion

1. On the **Home** ePanel, under Injector, click **Inject**.
2. Click **Load**.

   If communication is occurring, you will hear the injection valve actuate as it changes position.

3

Plumbing

This chapter provides instructions for plumbing the Dionex Aquion. These instructions apply to systems configured with a conductivity detector.

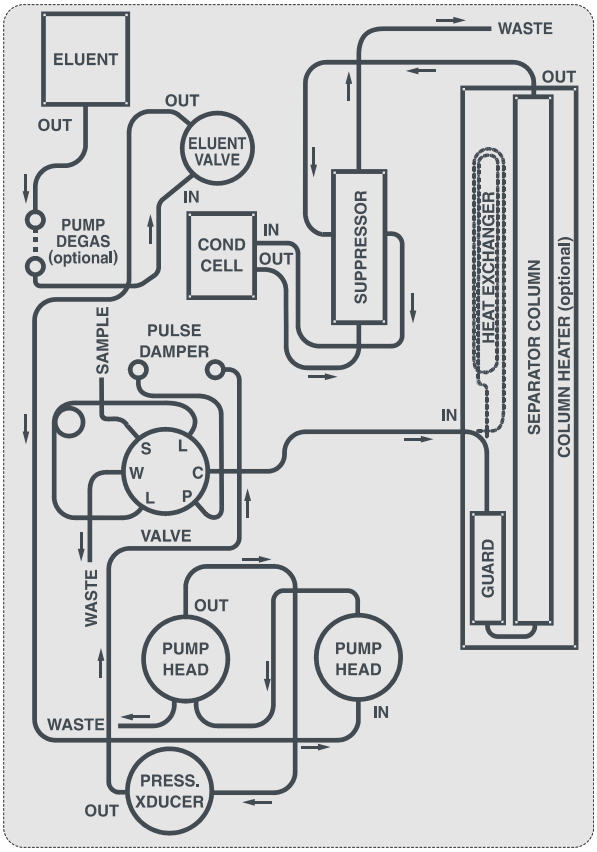
Contents

Installing and Plumbing the Columns and Suppressor

This section provides brief installation and plumbing instructions for the columns and suppressor. For detailed startup and installation instructions, refer to the column and suppressor manuals. The manuals are provided on the Thermo Scientific Reference Library DVD (P/N 60-053891).

Figure 18 shows the system flow schematic for the Dionex Aquion after all plumbing is completed.

Figure 18. Dionex Aquion plumbing schematic



❖ To unpack the columns and suppressor

1. Remove the guard column, separator column, and suppressor from their boxes.
2. Remove the fitting plugs from the ends of each column and from all ports on the suppressor.
3. Discard any tubing temporarily connecting the suppressor ports.

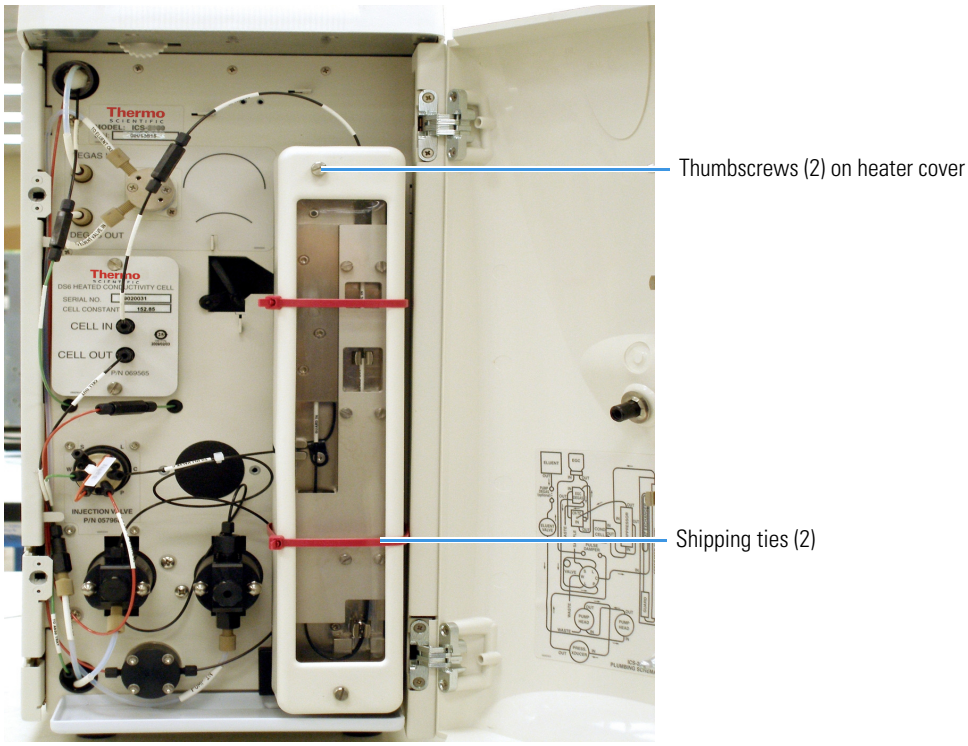
❖ To set up the column heater (optional)

Note For best results with 2-mm columns, install a microbore heat exchanger (P/N 060943) in the column heater. Refer to "Replacing the Column Heater Heat Exchanger" in your *Dionex Aquion Ion Chromatography System Operator's Manual* (Document No. 22176-97003). The manual is provided on the Thermo Scientific Reference Library DVD (P/N 60-053891). In addition, use red 0.125-mm (0.005-in) ID PEEK tubing (P/N 044221), rather than the standard black PEEK tubing, for tubing connections between the following components:

- Injection valve and column heater heat exchanger
- Guard column and separator column
- Separator column and detector cell

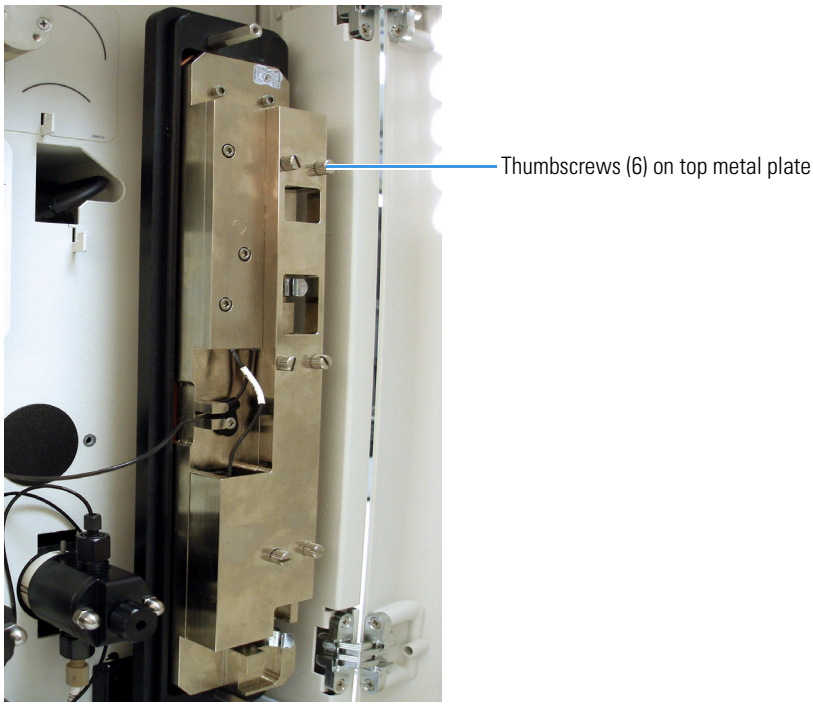
1. Cut off the two shipping ties from the column heater and remove them (see Figure 19).

Figure 19. Column heater with shipping ties



2. Loosen the two thumbscrews on the heater cover (they remain attached to the cover).
3. Pull the heater cover straight out to remove it.
4. Unscrew the six thumbscrews on the top metal plate and remove the plate (see Figure 20).

Figure 20. Column heater



❖ To plumb the columns

1. Remove the coupler connecting the lines labeled **GUARD IN** and **GUARD OUT**.
2. Connect the **GUARD IN** line to the guard column inlet.
3. Verify that the arrow on the guard column label points down (flow away from the injection valve).
4. Connect the **GUARD OUT** line to the guard column outlet.
5. Push the guard column onto the back column clip.
6. Remove the coupler connecting the **COL IN** and **COL OUT** lines.
7. Connect the **COL IN** line to the separator column inlet.
8. Connect the **COL OUT** line to the separator column outlet.
9. Verify that the arrow on the separator column label points up (flow toward the cell).
10. Push the separator column onto the front column clips.
11. Replace the top metal plate on the column heater.

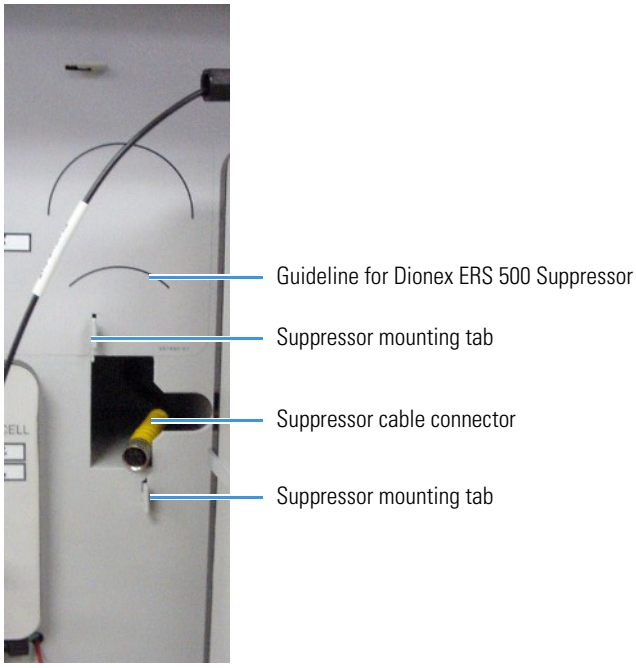
❖ To install the suppressor

1. Before installing the suppressor, hydrate it as instructed in the suppressor manual. Suppressor manuals are provided on the Thermo Scientific Reference Library DVD (P/N 60-053891).
2. Verify that the system power is off.

IMPORTANT Always turn off the system power before installing or removing a suppressor.

3. Locate the suppressor mounting tabs on the component panel (see Figure 21). Reach into the opening between the tabs and pull the connector and attached cable slightly out of the opening.
4. Connect this cable to the cable from the suppressor (align the pins on the two connectors and push them together).

Figure 21. Suppressor mounting tabs and guidelines



5. Orient the new suppressor with the **REGEN OUT** port on the top and press it onto the mounting tabs. Slide the suppressor down to secure it onto the tabs.
6. Pull out slightly on the center of the suppressor to verify that it is securely fastened.
7. Connect the liquid lines to the suppressor and the CD cell.

Figure 22 shows a Thermo Scientific™ Dionex™ ERS™ 500 Electrolytically Chemically Regenerated Suppressor installed on the component panel.

Figure 22. ERS 500 Suppressor installed

Connecting the Waste Lines

1. Untape the coiled waste lines from the Dionex Aquion rear panel. Place the ends of the **PUMP WASTE** and **TO WASTE OUT** lines into a waste container.
2. Direct the **WASTE, GAS SEPARATOR** line from the top of the system to the rear panel. Snap the line onto one of the tubing clips on the rear panel. Connect the line to the waste, gas separator tube (see "To install the waste, gas separator tube" on page 22).

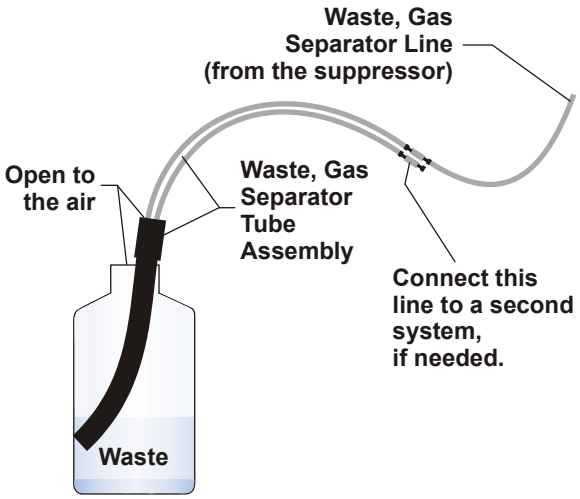
Note To prevent waste from siphoning back into the system, periodically verify that the lines are not bent, pinched, or elevated at any point.

❖ To install the waste, gas separator tube

The waste, gas separator tube is an integral part of the ERS 500 system. It separates any electrolytic gases (such as hydrogen and oxygen gas) generated in the Dionex AERS 500 or CERS 500 during electrolysis. It prevents the concentration of gas (particularly hydrogen gas) in the waste container. The waste, gas separator tube is shipped in one of the Ship Kits of your system.

1. Locate the waste, gas separator tube assembly in the Dionex Aquion Ship Kit (P/N 045460).
2. Connect the **WASTE, GAS SEPARATOR** line from the suppressor to one of the 3-mm (1/8-in) ID white PTFE lines on the waste, gas separator tube assembly (see Figure 23).

Figure 23. Waste, gas separator tube installation



3. Place the waste, gas separator tube assembly into the waste container. Verify that the tubing junction (where the white PTFE tubing meets the black polyethylene tubing) is above the top of the container and that the waste, gas separator tube and the waste container are open to the atmosphere.

CAUTION DO NOT CAP THE WASTE RESERVOIR. Minimal hydrogen gas generated by the Dionex ERS 500 is not dangerous unless the gas is trapped in a closed container and allowed to concentrate. The waste, gas separator tube must be open to the atmosphere, and not in a confined space, to operate properly.

MISE EN GARDE ATTENTION NE PAS COUVRIR LE BAC DE DÉCHETS. Une quantité minimale de gaz d'hydrogène produite par le Dionex ERS 500 n'est pas dangereuse à moins que le gaz d'hydrogène est occlus dans un bac fermée où le gaz peut se concentrer. Afin d'assurer un fonctionnement correct, le tuyau de décharge du séparateur de gaz doit être conduit dans une atmosphère ouverte et ne doit pas être guidé dans un bac fermé.

VORSICHT DECKEN SIE DEN ABFALLBEHAELTER NICHT AB. Weniges, vom Dionex ERS 500 erzeugtes Wasserstoffgas ist ungefährlich, außer es ist in einem geschlossenen Behaelter eingeschlossen und kann sich dort verdichten. Für eine ordnungsgemäße Funktion muss der Abfallschlauch des Gasabscheiders in eine offene Atmosphäre geführt werden und darf sich in keinem geschlossenen Behaelter befinden.

Setting Up the Eluent Reservoir

1. Rinse the eluent reservoir with ASTM filtered, Type I (18-megohm) deionized water (see "Deionized Water Requirements for IC" on page viii).
2. Prepare the eluent as instructed in the manual for the column being installed. The column manual is provided on the Thermo Scientific Reference Library DVD (P/N 60-053891).
3. Fill the reservoir with the prepared eluent.
4. Place the reservoir on top of the IC system.
5. Install the cap and handtighten.
6. Connect the liquid lines from the IC system to the corresponding lines exiting the eluent bottle.

Note The Dionex Aquion does not require pressurized reservoirs. However, if eluent is manually degassed or is sensitive to contamination, Thermo Fisher Scientific recommends pressurizing the reservoir with helium or nitrogen (see "Connecting the Pump Continuous Seal Wash (Optional)" on page 31).

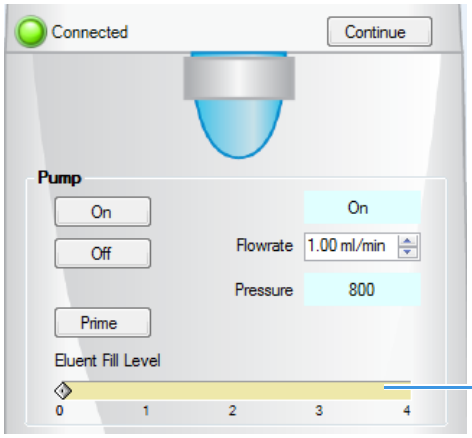
Setting the Eluent Level

After filling the reservoir, set the volume of liquid in the reservoir.

1. On the Chromeleon ePanel Set, click the **Pump_ECD** tab.

   The Pump ePanel opens (see Figure 24).

Figure 24. Pump ePanel: Setting the eluent level



2. Move the slider on the ePanel to set the Eluent Fill Level.

   The Dionex Aquion determines the eluent usage by monitoring the flow rate and the length of time the pump is on, and updates the Eluent Fill Level display as the eluent is depleted. A warning appears if the level falls below 200 mL. Warnings are repeated at 100 mL and 0 mL.

IMPORTANT For the level displayed on the ePanel to be accurate, select the level when the reservoir is full. The IC system does not automatically detect the eluent level.

Priming the Pump

Before priming, verify that the:

- Eluent reservoir is filled.
- Reservoir cap is installed and hand-tightened.
- Liquid line from the pump to the reservoir cap is connected.
- Waste lines are directed to a waste container
- (Optional) Piston seal wash system is set up.
- (Optional) Reservoirs are pressurized.

The priming procedure has two parts:

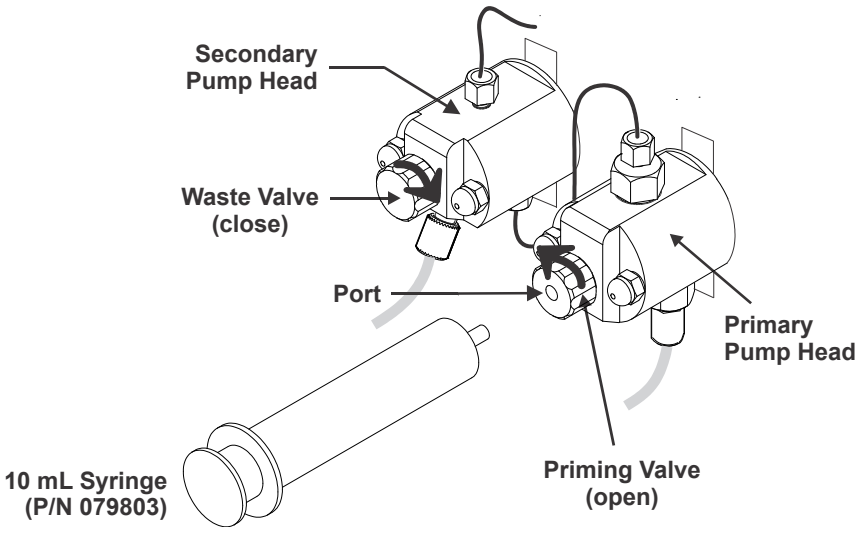
- Priming the eluent lines with a syringe. Perform this procedure at initial installation, after changing eluents, or when eluent lines are empty.
- Priming the pump heads with the **Prime** button on the Pump ePanel. Perform this procedure after the eluent lines are primed.

❖ To prime the eluent lines with a syringe

Note Prime the eluent lines after initial installation, after changing eluents, or when eluent lines are empty.

1. Verify that the pump is turned off.
2. Connect a 10 mL syringe (P/N 079803) to the priming valve port on the primary pump head (see Figure 25).

Figure 25. Pump head valve settings for priming the eluent lines



3. Open the priming valve by turning it one-quarter to one-half turn counterclockwise.
4. On the Pump ePanel (see Figure 26), under Valve, click the valve graphic to select the **Inject Position** (see Figure 27).

Figure 26. Pump ePanel

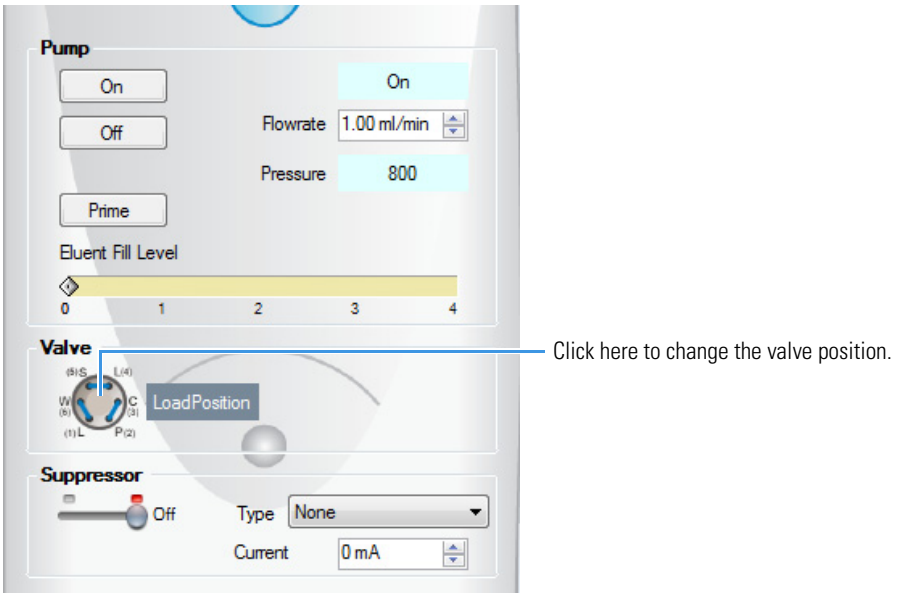
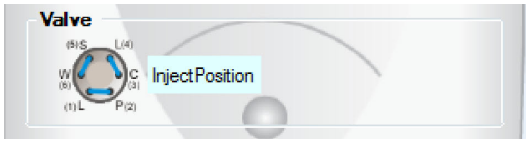


Figure 27. Pump ePanel showing Inject Position



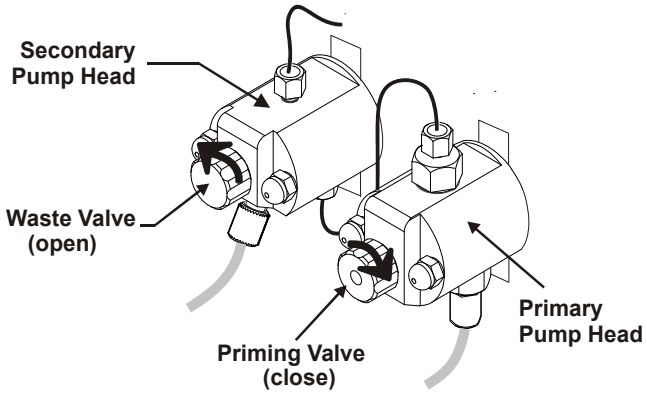
5. Draw the syringe back to begin pulling eluent through the flow path. It may take several syringe draws to remove all air or previous eluent from the tubing. Draw out a minimum of 20 mL of eluent to verify that the vacuum degas assembly (if installed) is primed.
6. After priming the lines thoroughly, close the priming valve. **Do not overtighten the priming valve.**
7. Under Valve, click the valve graphic again to select the **Load Position**.

❖ To prime the pump heads with the Prime button

Note Prime the pump heads after priming the eluent lines.

1. Close the priming valve on the primary pump head (see Figure 28).

Figure 28. Pump head valve settings for priming the pump heads



2. Open the waste valve on the secondary pump head by turning the knob one-quarter to one-half turn counterclockwise (see Figure 28). Opening the valve directs the eluent flow path to waste and eliminates backpressure.
3. On the ePanel, under Pump, click **On**.
4. Click **OK** when the reminder message appears to verify that the waste valve is open. The pump will begin pumping at approximately 3 mL/min.
5. Continue priming the IC system until no air bubbles are exiting the pump waste line.
6. On the ePanel, under Pump, click **Off**.

7. Close the waste valve. **Do not overtighten.** The pump is now ready for operation.

Note If the two standard priming procedures described above are unsuccessful, prime the pump with isopropyl alcohol. Refer to the *Dionex Aquion Ion Chromatography System Operator's Manual* (Document No. 22176-97003) for instructions. The manual is provided on the Thermo Scientific Reference Library DVD (P/N 60-053891).

Equilibrating the System

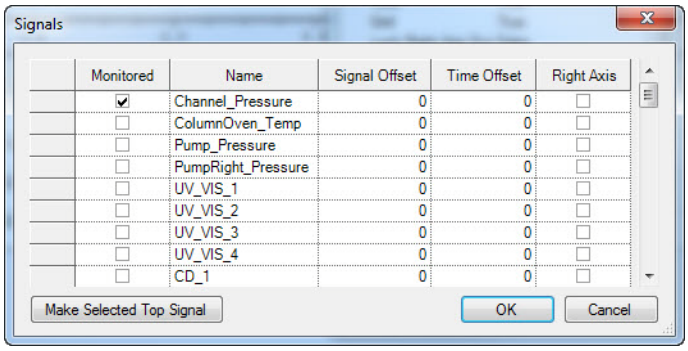
1. Set the flow rate specified in the Quality Assurance Report (QAR) shipped with the column and turn on the pump.
2. Flush the system for about 5 minutes to equilibrate.
3. Monitor the pump pressure to verify it is at the expected pressure for the installed column (refer to the column manual for details) and is stable. The pump pressure reading is displayed on the Chromeleon ePanel.
4. If the pressure is less than the expected amount, gas may be trapped in the system. Release the gas by removing the pump fitting on the injection valve. The fitting is labeled **P (2)**. Allow the air to escape and then reconnect the fitting. Verify that liquid is flowing out of the suppressor **REGEN OUT** waste line and that the pressure is stable.
5. Monitor the baseline conductivity. In general, it should be <30 µS for a system set up for anion analyses and <2 µS for a system set up for cation analyses. Equilibration time varies and it can take some time to reach these expected values.

Verifying Operational Status

After the system has equilibrated, you can verify that the pump pressure signal is enabled and verify the actual pump pressure and stability by monitoring the pump pressure reading on the Chromeleon ePanel Set. Write down the short-term pressure fluctuations; they should be less than 0.13 MPa (20 psi).

1. On the ePanel, right-click anywhere on the signal plot and click **Properties** to open the Plot Properties dialog box.
2. Under Appearance, click **Signals**, and click  to open the Signals dialog box.
3. Verify that the **Channel_Pressure** check box is selected (see Figure 29).

Figure 29. Pump pressure channel enabled



Pump pressure readings will now be plotted as a separate signal during data acquisition (along with the detector signals).

Connecting the Analog Output (Optional)

The analog output connector on the Dionex Aquion rear panel outputs an analog voltage signal proportional to the conductivity measured by the cell. The selected data rise time filters the output. The analog output can be connected to an analog-to-digital converter, such as an integrator or other recording device. Refer to the device documentation for connection instructions.

Analog output is 0 to 1V, scaled to the selected range.

Pressurizing the Eluent Reservoir (Optional)

The Dionex Aquion does not require pressurized reservoirs. However, if eluent is manually degassed or is sensitive to contamination, Thermo Fisher Scientific recommends pressurizing the reservoir with helium or nitrogen. The air regulator accessory bracket and other items needed for pressurizing the eluent reservoir must be ordered separately (P/N 060054).

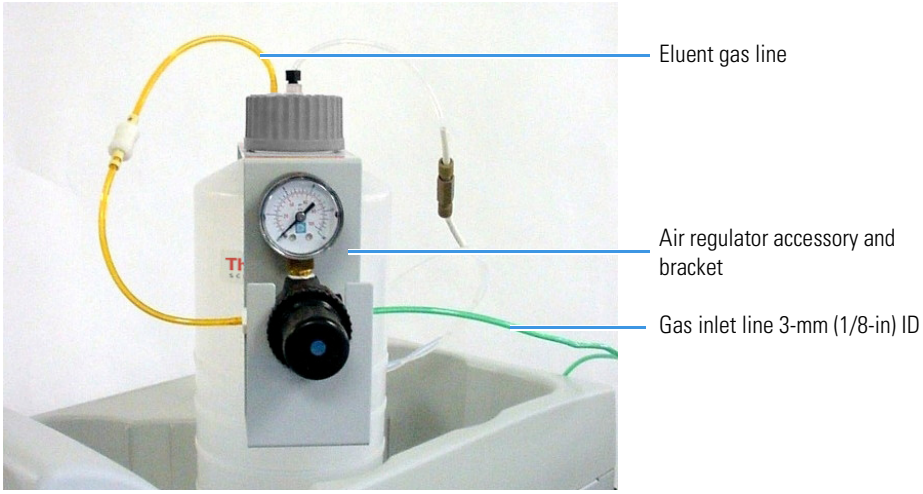
These required parts must be ordered separately:

- Barbed fitting (P/N 030071)
- Pipe thread reducer (P/N 030087)
- 3-mm (1/8-in) ID tubing (P/N 040793)
- Air regulator accessory (P/N 060054)

Connecting the Gas Source

Figure 30 illustrates the eluent reservoir after all gas connections are complete.

Figure 30. Dionex Aquion pressurized eluent reservoir connections (optional)



1. Use the barbed fitting and pipe thread reducer to connect the 3-mm (1/8-in) ID tubing to a clean gas source regulated to between 0.55 and 0.83 MPa (80 and 120 psi).
2. Push the other end of the tubing onto the inlet of the air regulator.
3. Remove the eluent reservoir cap.
4. Connect the gas line from the eluent reservoir cap to the gas line on the air regulator outlet.
5. Slip the air regulator accessory bracket over the neck of the eluent reservoir (see Figure 30).

Applying the Pressure

1. Before pressurizing, verify that the reservoir is filled and connected to the system (see "Setting Up the Eluent Reservoir" on page 24).
2. Pull out the air regulator knob and turn it fully counterclockwise to ensure that no pressure goes to the reservoir when the gas source is turned on.
3. Turn on the gas source.
4. Pull out the air regulator knob and turn it clockwise to pressurize the eluent reservoir.
5. Adjust the pressure to between 0.03 and 0.04 MPa (5 and 6 psi).

6. Push the regulator knob back in.

CAUTION Do not pressurize the eluent reservoir above 0.07 MPa (10 psi).

MISE EN GARDE Ne mettez jamais les réservoirs d'éluants sous une pression supérieure à 0,07 MPa (10 lb/po²).

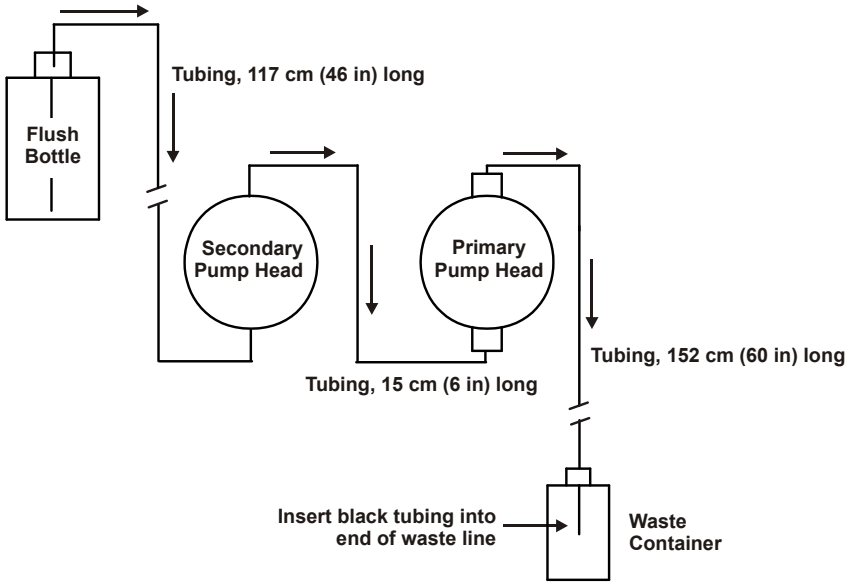
VORSICHT Setzen Sie den Eluentbehälter auf keinen Fall einem Druck über 0,07 MPa aus.

Connecting the Pump Continuous Seal Wash (Optional)

The pump includes a seal wash assembly that can be set up to continuously rinse the back of the piston seals to remove salt crystals and prolong the life of the seals.

Figure 31 shows the seal wash plumbing after all connections are complete.

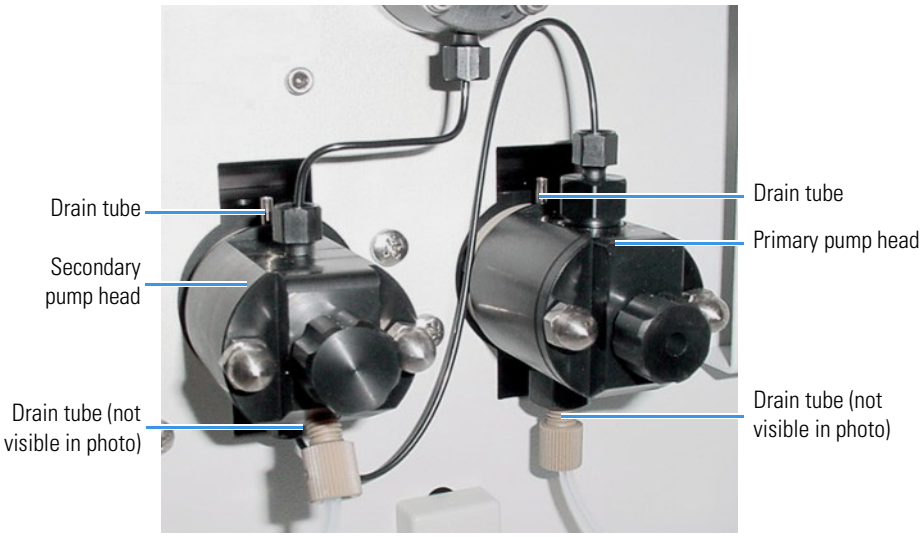
Figure 31. Piston seal wash flow schematic



1. Fill a flush bottle with deionized water or a combination of deionized water and 10% or 20% isopropyl alcohol. (Isopropyl alcohol will inhibit bacterial growth in the water.)
2. Place the flush bottle on top of the Dionex Aquion. During operation, gravity maintains flow through the pump heads.

3. The flush solution is carried to the piston seal wash assembly and out to waste via 1.5-mm (0.06-in) ID tubing (P/N 055847). Locate this tubing in the Dionex Aquion Ship Kit (P/N 045460) and cut the tubing into three unequal pieces:
   - 117 cm (46 in)
   - 152 cm (60 in)
   - 15 cm (6 in)
4. Install the tubing as follows (see Figure 32):
   a. Push the 117-cm (46-in) piece of clear tubing onto the drain tube on the bottom of the *secondary* pump head. Place the free end of this tubing in the flush bottle. Verify that the end of the tubing is near the bottom of the bottle.

Figure 32. Primary and secondary pump heads with drain tubes



   b. Push the 152-cm (60-in) piece of clear tubing onto the drain tube on the top of the *primary* pump head. This is the waste line. Route this waste line through the lower tubing chase and out the back of the IC system.
   c. Push the 15-cm (6-in) piece of clear tubing over the drain tube on the top of the *secondary* pump head. Push the other end of the tubing over the drain tube on the bottom of the *primary* pump head.
   d. Place a 10 mL syringe (P/N 079803) at the end of the waste line, press the syringe against the line to form a seal, and draw out all of the air.
   e. Push approximately 5 cm (2 in) of black 0.25-mm (0.01-in) ID tubing (P/N 057057) into the end of the waste line.

> **Note** The black tubing creates a flow restriction. Assuming a height difference of about 76 cm (30 in) between the flush bottle and the waste container, this setup provides a flow of one drop of flush solution every 5 to 30 seconds.

   f. Place the end of the waste line in a waste container.

g. This completes the piston seal wash installation. Periodically refill the flush bottle and empty the waste container as required.

This completes the installation procedure for the Dionex Aquion. You can begin processing samples using Chromeleon. For operating instructions, refer to your *Dionex Aquion Ion Chromatography System Operator's Manual* (Document No. 22176-97003). The manual is provided on the Thermo Scientific Reference Library DVD (P/N 60-053891).