Eksigent MicroLC 200 Plus System Upgrade Kit Instructions

This document contains instructions to upgrade an ekspert™ microLC 200 system to an Eksigent MicroLC 200 Plus system. The upgrade kit consists of components than can help to prevent leaks, improve column lifetime, and minimize clogging.

Caution: Potential System Damage: Prior to operating the system, refer to "Safety Instructions" in the *Operator Guide* for detailed information on the safe use and operation of the system.

Follow the procedures in the order below:

1. Download the Most Recent Operator Guide.
2. Unpack the Upgrade Kit.
3. Apply the Label to the Pump.
4. Plumb the Injection Valve.
5. Replace the Syringe Needle.
6. Configure the Needle Penetration Depth.

Download the Most Recent Operator Guide

The *Operator Guide* has been updated to reference the parts in the upgrade kit.

1. Go to www.eksigent.com/downloads/literature.
2. Scroll down and click ***Eksigent MicroLC 200 Plus System Operator Guide***.

Unpack the Upgrade Kit

Table 1 Upgrade Kit (PN 5031861 Rev. E)

Part Number	Description	Quantity
5023797	Injection port fitting	3
5024174	Gold plated nut with 6-32 threads, 3/16 inch	10
5028466	50 µm ID electrode for AB SCIEX Turbo V™ ion source	1
5028467	25 µm ID electrode for Turbo V ion source	1
5028658	C18 guard column	1
5031383	Autosampler needles, 3-pack	1
5036089	*Eksigent MicroLC 200 Plus System Upgrade Kit Instructions*	1
5036153	Front panel label	1
200-00388	In-line filter	1
205-00070	Tubing, PEEKsil, 50 µm ID, 1/32 inch OD, 5 cm long	4

Table 1 Upgrade Kit (PN 5031861 Rev. E) (Continued)

Part Number	Description	Quantity
205-00089	Tubing, PEEKsil, 25 µm ID, 1/32 inch OD, 5 cm long	4
910-00087	Stainless steel ferrule, 1/32 inch, 10-pack	2

Apply the Label to the Pump

1. Wipe the label on the front panel of the pump with 5% ethanol or isopropanol and then dry with a lint-free wipe.
2. Remove the backing from the label.
3. Place the label to the right of the existing label.

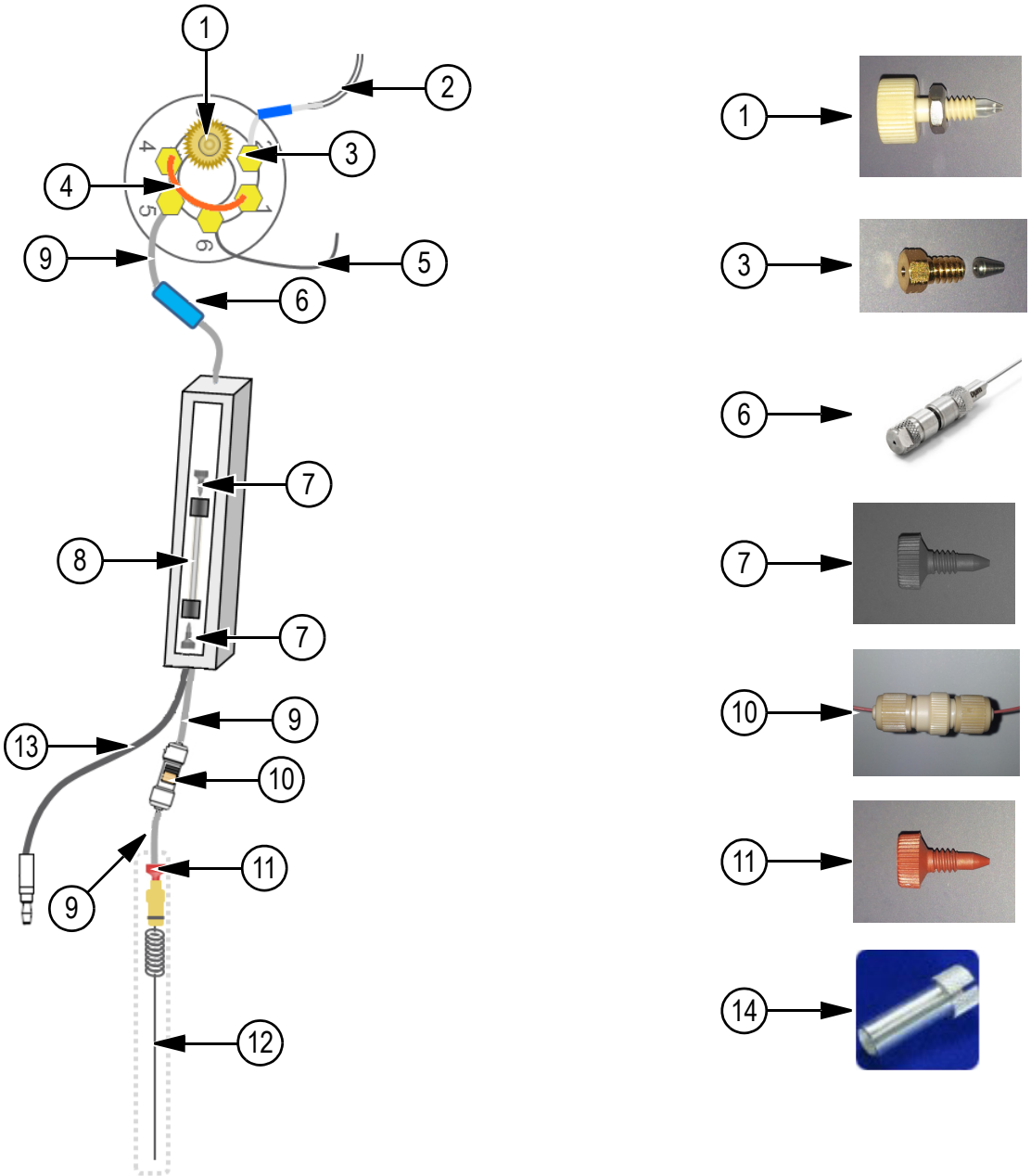
Figure 1 Front Panel Label

Plumb the Injection Valve

Figure 2 shows the plumbing for the entire flow path, using the fittings in the upgrade kit. Items in **bold** are included in the upgrade kit.

For detailed instructions, refer to Re-plumb the Valve with the Upgrade Kit on page 5.

Figure 2 Injection Valve Plumbing with Grounding Assembly (Left) and Fittings and Tools (Right)



Item	Description	Part Number
1	**Injection port**	**5023797**
2	Injection valve waste tube assembly	5017800
3	• **Gold-colored nuts** • **Ferrules**	**5024174** **910-00087**
4	One of the following: • 2 µL PEEKsil loop • 5 µL PEEKsil loop • 10 µL PEEKsil loop	 5017798 5017799 205-00054
5	Mixer-to-valve assembly	5017801
6	(Optional) **Guard column** (use for flow <10 µL/min with 0.3 mm inside diameter (ID) columns)	**5028658**
7	Black PEEK fitting (If necessary, use tool PN 200-00356.)	200-00342
8	2.7 µm HALO fused C18 column, 0.5 mm x 50 mm	805-10100
9	Either of the following, depending on flow rate: • For flow > ~20 µL/min—**Gray PEEKsil tubing, 50 µm ID, 1/32 inch outside diameter (OD), 5 cm** or • For flow < ~20 µL/min—**Orange PEEKsil tubing, 25 µm ID, 1/32 inch OD, 5 cm**	 **205-00070** **205-00089**
10	**In-line filter**	**200-00388**
11	Red PEEK nonconducting fitting (use for <5000 psi only) (See note below.)	200-00330
12	One of the following: • 65 µm ID electrode • **50 µm ID electrode** • For flow <~20 µL/min—**25 µm ID electrode**	 5029342 **5028466** **5028467**
13	Grounding cable	5016941
14	Tool for PEEK fittings (PN 200-00342)	200-00356

Note: When connecting the 65 µm ID electrode, use a red PEEK fitting (item 11) immediately before the electrode. When connecting either the 25 µm ID or the 50 µm ID electrode, use either the red PEEK fitting or black PEEK fitting (item 7).

Re-plumb the Valve with the Upgrade Kit

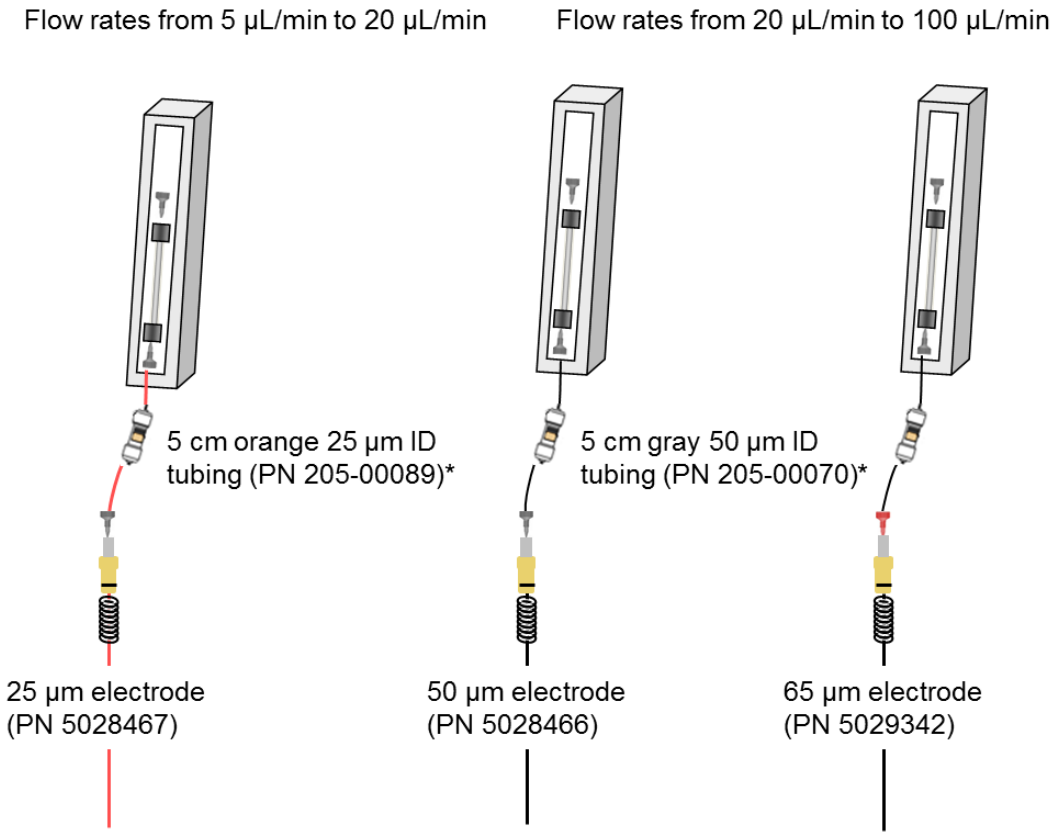
Note: The instructions below assume the system is already set up. For complete instructions on plumbing the injection valve and installing the electrode using the fittings in the upgrade kit, refer to the *Eksigent MicroLC 200 Plus System Operator Guide*.

Required Materials

- Eksigent MicroLC 200 Plus System Upgrade Kit (PN 5031861)
- Spare autosampler needle (provided in kit or use spare from accessory kit)
- 3/16 inch wrench

1. Remove all the fittings from the injection valve.
2. Disconnect the existing tubing between the valve and the column inlet.
3. Install the injection port fitting (PN 5023797) (item 1 in Figure 2 on page 3) in port 3.
    a. Replace the fitting and tighten until finger-tight.
    b. Insert the spare needle into the fitting in port 3 and slide it in and out.
    c. Tighten the fitting until the needle is snug but can still move in and out of the fitting.
4. For the other ports on the valve, use ferrules (PN 910-00087) and nuts (PN 5024174) (item 3) to make the following connections:
    a. Reconnect the waste tube assembly (PN 5017800) (item 2) to port 2.
    b. Reconnect the mixer-to-valve assembly (PN 5017801) (item 5) to port 6.
    c. Reinstall the sample loop (item 4) in ports 1 and 4, using a 3/16 inch wrench.
5. (Optional) Connect the guard column to the valve and the analytical column. Use ferrules (PN 910-00087) and nuts (PN 5024174) (item 3) to make the connections.
    a. Assemble the guard column (PN 5028658) (item 6).
    Refer to *Installing an Eksigent Guard Column* for instructions on assembling the guard column.
    b. Connect the guard column to port 5, using 5 cm of 1/32 inch OD, 25 µm ID PEEKsil tubing (PN 205-00089) (item 9).
    c. Connect the tubing coming from the guard column to the analytical column inlet.
6. Disconnect the existing tubing between the column outlet and the electrode.
7. Connect the column outlet to the in-line filter (PN 200-00388) (item 10) and the in-line filter to the electrode (Figure 3 on page 6).
    a. For each connection, use 5 cm of 1/32 inch OD PEEKsil tubing (item 9).
        - **Flow rates > ~20 µL/min**—50 µm ID tubing (PN 205-00070)
        - **Flow rates < ~20 µL/min**—25 µm ID tubing (PN 205-00089)

Figure 3 ESI Probe Plumbing—25 µm ID (Left), 50 µm ID (Center), and 65 µm ID Electrodes (Right)



Match the post-column tubing color to the electrode color.

*Without an in-line filter, use 10 cm of tubing between the column and the electrode: 25 µm ID – PN 205-00091 or 50 µm ID – PN 205-00070

b. Connect the other end of the tubing to the electrode, using the appropriate fitting.
   - **25 µm and 50 µm ID electrodes**—black PEEK fitting (PN 200-00342) (item 7)
   - **65 µm ID electrodes**—red PEEK nonconducting fitting (PN 200-00330) (item 11)

WARNING! Electrical Shock Hazard: Do not use conductive fittings such as the high-pressure carbon-filled black fittings with the 65 µm ID electrode. Use the red fitting to prevent the risk of electrical shock.

8. Verify one end of the black grounding cable (PN 5016941) (item 13) is connected to the grounding point on the ion source and the other end is clipped to the appropriate location.
   - **25 µm and 50 µm ID electrodes**—clip to the grounding union on the probe
   - **65 µm ID electrode**—clip to the column in the column oven

9. Close the column oven.

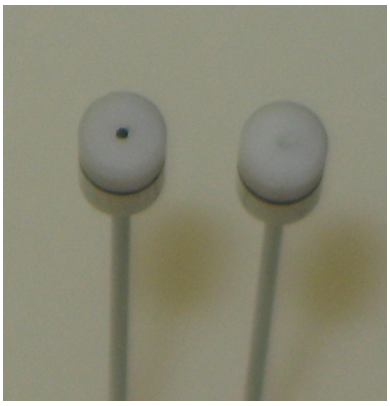
Replace the Syringe Needle

The upgrade kit includes new autosampler needles which are designed to prevent damage to the injection port seal. After replacing the needle, the needle penetration depth on the autosampler must be reset.

Required Materials
• Needle and Teflon seal (PN 5031383)

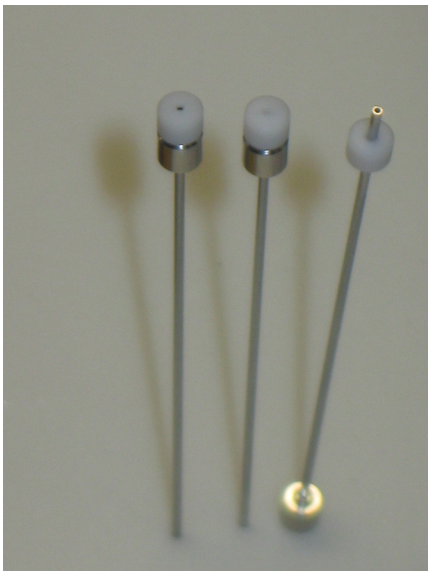
1. Remove the needle.
   a. Select **Menu > F1 Chang Syr**.
      The injection unit moves to a location convenient for accessing the syringe and needle.
   b. Loosen the knurled needle retaining nut and remove the needle.
2. Prepare the new needle.
   a. Insert the needle into the Teflon seal.
      Sometimes the hole in the seal contains a burr, Teflon residue from the seal (Figure 4).

Figure 4 Teflon Needle Seal—Clean Seal (Left) and Seal with Burr (Right)



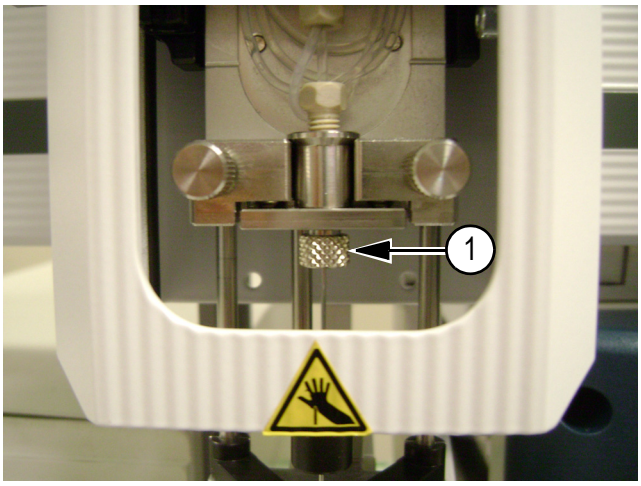
   b. If necessary, remove any burrs created by the insertion.
      Remove the seal from the needle, and then use the long end of the needle to push the burr out.
      Be careful not to scratch the seal.

Figure 5 Syringe Needles and Seals, Showing Cleaning the Needle Seal (Right)



3. Install the needle.
   a. With one hand, lift up the bottom needle guide until it touches the upper needle guide.
   b. With the other hand, guide the tip of the new needle into both guides, and then release the bottom needle guide.
   c. Insert the top of the needle into the fitting, and then tighten the needle collar until finger tight (Figure 6).

Figure 6 Syringe Needle Collar



Item	Description
1	Needle collar

4. Gently slide the lower needle guide up and down to make sure that the tip of the needle is near the bottom of the hole in the needle guide.

If the needle tip is above the hole at rest, then the needle will probably hit the hole when compressed, bending the needle.

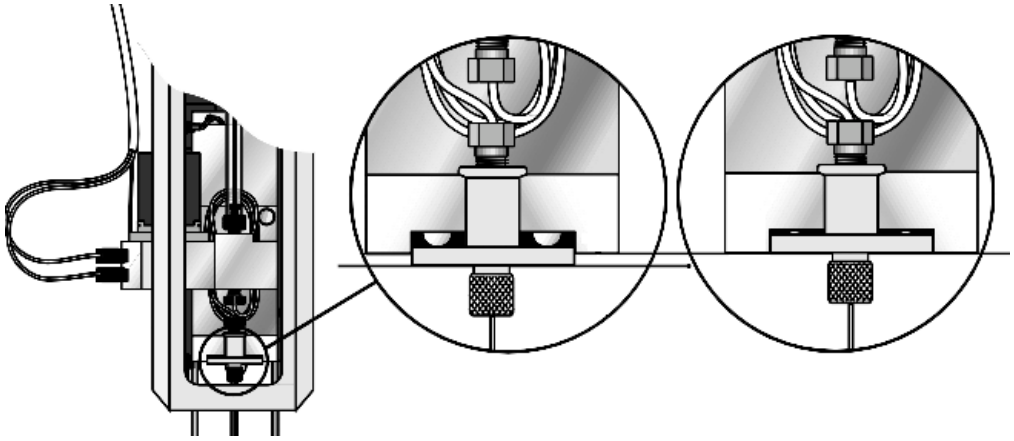
5. Follow the steps in Configure the Needle Penetration Depth.

Configure the Needle Penetration Depth

1. Check the needle penetration depth.
   a. On the keypad terminal, navigate to **Menu > Setup**.
   b. Press **F3** then press **Enter**.
   c. Select **Objects > Injectors**, and then press **Enter**.
   d. Select **LC Vlv1**.
   e. Select **Needle Penetr**, and then press **Enter**.

   The needle penetration depth is correct if the plate contacts the syringe holder assembly and the spring plate is fully compressed (Figure 7).

Figure 7 Needle Penetration Depth, Correct Compression Shown on Far Right



If the penetration depth is not correct, continue to the steps below to set and verify the depth.

2. Set the needle penetration depth.
   a. Select **Clear Position (F2)**, and then select **Z**.
   b. Select **Check Position (F1)** to move to the preset position.
   c. Slowly rotate the outer knob to adjust the needle penetration depth.

      The needle moves stepwise down into the injection port.
   d. When the needle tip enters the valve needle guide, slow down the Z movement.

      Move down stepwise until the moving plate contacts the syringe holder assembly and the spring plate is fully compressed (Figure 7).

      Always observe the needle during this step.

Note: This is more force than CTC recommends for conventional injection ports.

e. Rotate the outer knob two steps in the opposite direction, and then press **Enter** to save the value for needle penetration depth.

f. Press **F3 Movto Zero**.

3. Repeat step 1 to verify the needle penetration depth.

   If the needle bends, or the liquid appears at the fitting when doing a wash, and then repeat step 2.

Revision History

Revision	Reason for Change	Date
RUO-IDV-05-1394-A	First release of document.	May 2014
RUO-IDV-05-1394-B	Added details about when guard column should be used and updated reference for how to assemble it.	July 2014
RUO-IDV-05-1394-C	Updated to incorporate MicroLC 200 Plus. Updated legal page and manufacturer's address. Added instructions for applying instrument label.	September 2014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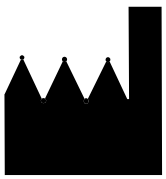

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