

AZURA® pH flow cell

AZURA pH flow cells are available in two variants:

- A1943 – for micro and semi-preparative applications up to 100 ml/min
- A1946 – for preparative applications over 100 ml/min

Both flow cells serve as vessel for the AZURA pH electrode forming an in-line pH sensor. Connected to a readout device, e.g. the AZURA Conductivity Monitor CM 2.1S, the sensor enables continuous monitoring of the pH value of fluid streams.

Scope of delivery

<p>Legend</p> <ul style="list-style-type: none"> ① Universal AZURA Click mounting rail holder ② Adapter plate ③ AZURA pH flow cell ④ Cap nut of the AZURA pH flow cell ⑤ Capillary fitting set for 1/16" tubing ⑥ Capillary fitting set for 1/8" tubing ⑦ Blind fittings ⑧ Screws, size M3x10 ⑨ Screws, size M3x6 	<p>Fig. 1: AZURA pH flow cell < 100 ml/min, scope of delivery</p>
<p>Legend</p> <ul style="list-style-type: none"> ① Universal AZURA Click mounting rail holder ② Adapter plate ③ AZURA pH flow cell > 100 ml/min ④ Cap nut of the AZURA pH flow cell ⑤ Fitting set for 1/8" tubing ⑥ Fitting set for 3/16" tubing ⑦ Blind fittings ⑧ Screws, size M3x10 ⑨ Screws, size M3x6 	<p>Fig. 2: AZURA pH flow cell > 100 ml/min, scope of delivery</p>

Mounting

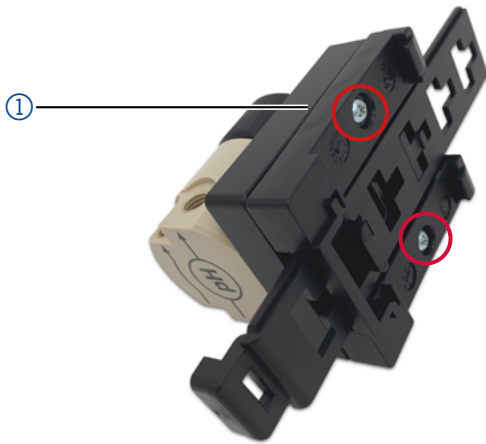

The positioning of sensors in the fluid path of a system is critical to maintaining its separation performance.

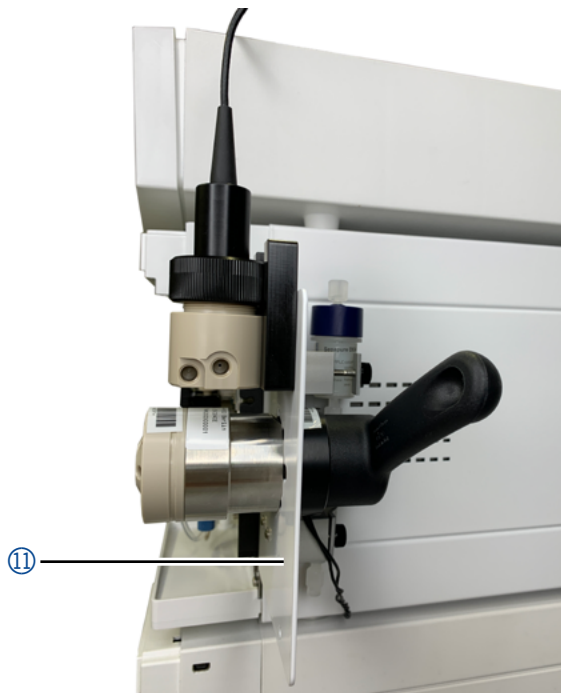


AZURA pH flow cells ③ meet this demand by their multi-mounting capabilities as they can be implemented at almost any place within an AZURA FPLC system, using either the AZURA Click system, the AZURA Organizer ⑩ or the AZURA Mounting Bracket Bio L ⑪.

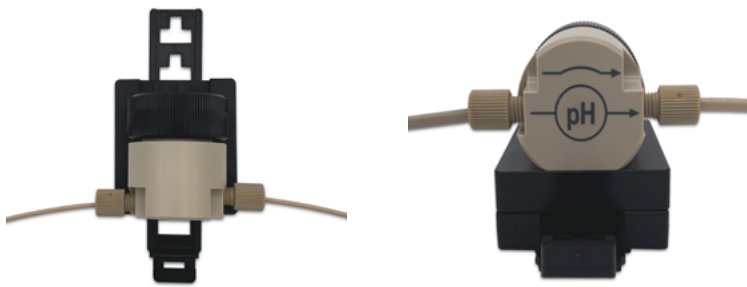
For further information on how to install the flow cell refer to the supplementary sheet of the assembly of your choice (www.knauer.net/library).

While the AZURA pH flow cell can be mounted directly on the AZURA Click mounting rail, mounting on the AZURA Organizer or Mounting Bracket Bio L requires a simple, prior modification:

- Tools**
- Phillips screwdriver, PH1
 - Torx screwdriver, T10
 - 2 screws, size M3x06
 - 2 screws, size M3x10

Process	Figure
<ol style="list-style-type: none"> 1. Loosen the two screws on the back of the assembly with a Phillips screwdriver (PH1). 2. Remove the universal AZURA Click mounting rail holder ①. 	 <p>Fig. 3: Loosen two screws</p>
<ol style="list-style-type: none"> 3. Now you can mount the pH flow cell to the AZURA Organizer ⑩ by using the two screws (size M3x10) and the T10 torx screwdriver. 	 <p>Fig. 4: pH flow cell mounted to AZURA Organizer</p>

Process	Figure
<p>4. Or you can mount the pH flow cell to the AZURA Mounting bracket Bio L ¹¹ by using the two screws (size M3x06) and the T10 torx screwdriver.</p>	 <p>Fig. 5: pH flow cell mounted to AZURA Mounting bracket Bio L</p>
<p>5. If you want to mount the pH flow cell to the AZURA Click mounting rail ¹², you do not have to remove the AZURA Click mounting rail holder.</p> <div>  </div> <p>Video: On the KNAUER YouTube channel you will find a short tutorial on how to attach and take off the AZURA Organizer from the carrier rail: AZURA Click with AZURA Organizer.</p>	 <p>Fig. 6: pH flow cell mounted to AZURA Click system</p>

Process	Figure
<p>6. Connect the AZURA pH flow cell to the liquid capillary by using either of the included flat-bottom fitting sets.</p>	 <p>Fig. 7: Exemplarily shown: AZURA pH flow cell < 100 ml/min with connected liquid capillaries, (1/16" or 1/8" OD)</p>

Operation

Inserting a pH electrode

To implement an AZURA pH electrode, unlock the cap nut ④ from the pH flow cell ③. Insert the pH electrode and screw the cap nut hand tight back onto the pH flow cell.

Next steps:

Connect the BNC plug to the BNC connector of the CM 2.1S.

For further information refer to the instructions of the AZURA Conductivity Monitor CM 2.1S.



Note: To protect the pH electrode, the pressure in the pH flow cell must always be kept below or equal to 5 bar when the pH electrode is inserted. The maximum pressure of the AZURA pH flow cell with inserted dummy electrode is at least 50 bar. The maximum pressure of the bypass is only limited by the capillary fitting set used.

Removing a pH electrode

In order to remove the pH electrode, unlock the cap nut and store the pH electrode in a buffered solution as recommended in the corresponding instruction manual.

Inserting and removing a dummy electrode

Lock or unlock, respectively the cap nut. Clean the dummy electrode ⑬ with water and store dry in a clean environment.

Tips for FPLC system operation without inserted pH electrode

pH electrodes may be removed from the system flow, either because they:

- have to be replaced or recalibrated
- do not withstand the used eluent or cleaning solvent

In order to still be able to operate the FPLC system you can either:

- connect the fluid capillaries to the integrated bypass (use blindfittings during the tubing switching to prevent leakages, see Fig.8) or
- insert the dummy electrode (order separately) after removing the pH electrode (see Fig.9).

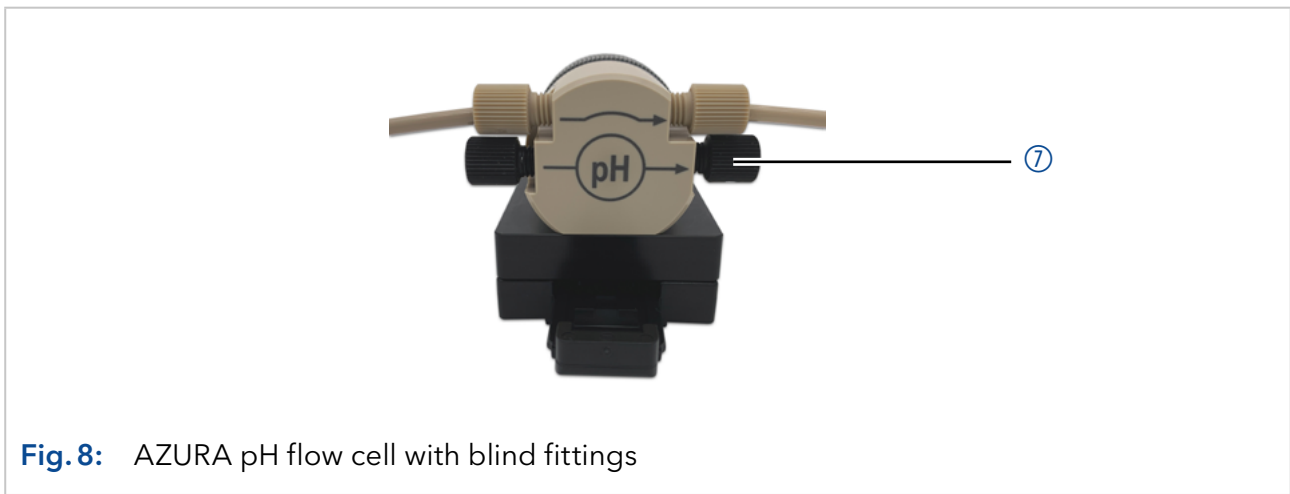


Fig. 8: AZURA pH flow cell with blind fittings

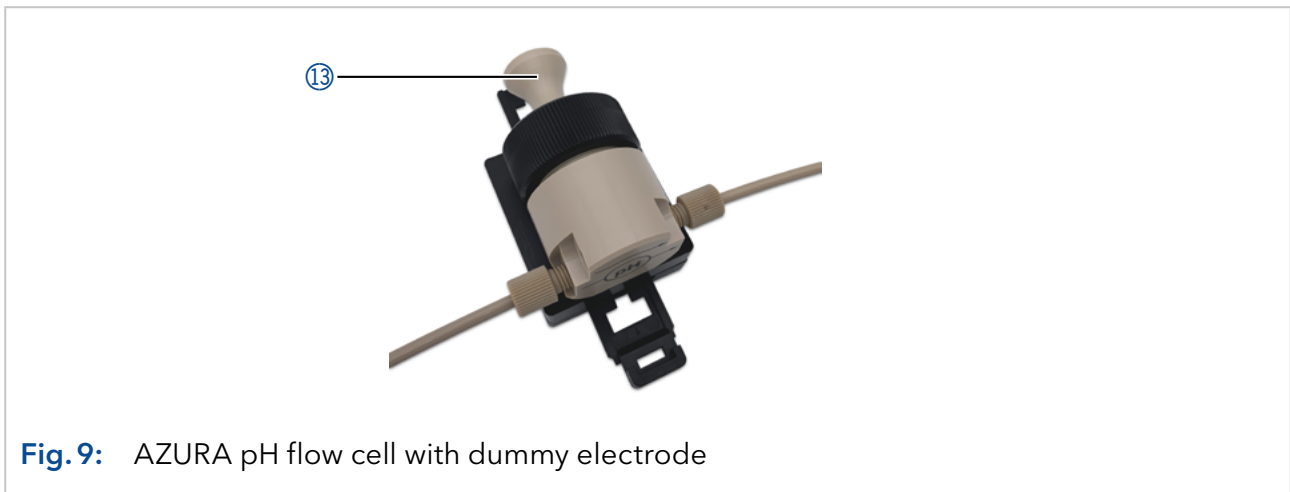


Fig. 9: AZURA pH flow cell with dummy electrode



Note: When using the integrated bypass, the total fluid volume of the system is minimized and so does the contribution to band broadening of the flow cell.

When the AZURA pH dummy electrode 13 is used instead, the total fluid volume of the system remains unchanged during pH electrode exchange.

Keep that in mind, when calculating the dwell volume between the point of detection and point of fractionation for methods with and methods without pH monitoring.

Repeat orders

Name	Order Number
pH electrode, round tip, with quality control certificate	A1933-1
AZURA pH flow cell incl. mounting set, 1/4-28" UNF FB fittings for 1/16" & 1/8" OD tubing and blind fittings	A1943
AZURA pH flow cell incl. mounting set, 5/16-24" UNF FB fittings for 1/8" & 3/16" OD tubing and blind fittings	A1946
AZURA pH dummy electrode, PEEK, incl. cap for AZURA pH sensor (A70091-2)	A1942-1
O-ring for A1943 and A1946, FFKM	A1943-1
Bushings flat bottom, super flangeless, 1/16" connection, UNF 1/4-28 thread, PEEK, without ferrules (1 set = 10 pcs)	A58291
Bushings flat bottom, super flangeless, 1/8" connection, UNF 1/4-28 thread, PEEK, without ferrules (1 set = 10 pcs)	A5829
Blind fitting flat bottom, 1/8" connection, UNF 1/4-28 thread, Delrin, (1 pcs)	A5829A
Super flangeless fitting, flat-bottom, 3/16" connection, UNF 5/16-24 thread, PEEK/ETFE (1 pcs)	A142700
Super flangeless fitting, flat-bottom, 3/16" connection, UNF 5/16-24 thread, PEEK (1 pcs)	A142703
Blind fitting, flat-bottom, 3/16" connection, UNF 5/16-24 thread, PEEK (1 pcs)	A142701
Union 2x UNF 5/16-24 female, flat-bottom, 3/16" connection, UNF 5/16-24 thread, PEEK (1 pcs)	A142704