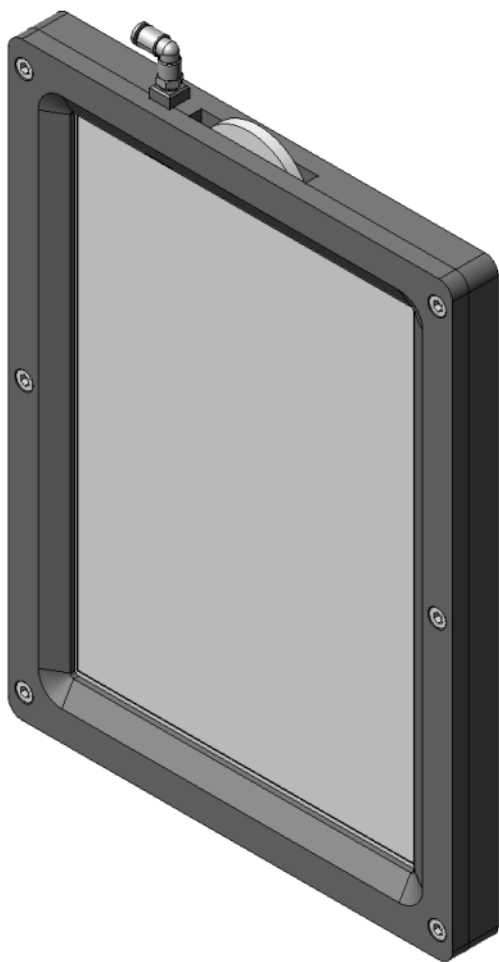


# MOUNTING INSTRUCTIONS

ba76171e02 04/2019



# FM/PC FM-Case/PC, Filter/PC

FILTER MODULE FOR ANALYZERS



a xylem brand



For the most recent version of the manual, please visit [www.ysi.com](http://www.ysi.com).

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# 1 Overview

For failure-free operation of the analyzer, the samples have to be supplied in a suitable quality and in sufficient quantities.

The filter module is part of the system for sample filtration for the following analyzers:

- Alyza IQ
- P 700 IQ

## 2 Scopes of delivery

### 2.1 FM/PC

- 1 x FM-Case/PC
- 1 x Filter/PC

### 2.2 FM-Case/PC

- 2 x frame parts
- 1 x adapter
- 6 x Allen screws  
(hexagon socket head cap screws)
- 1 x special brush
- 1 x mounting instructions

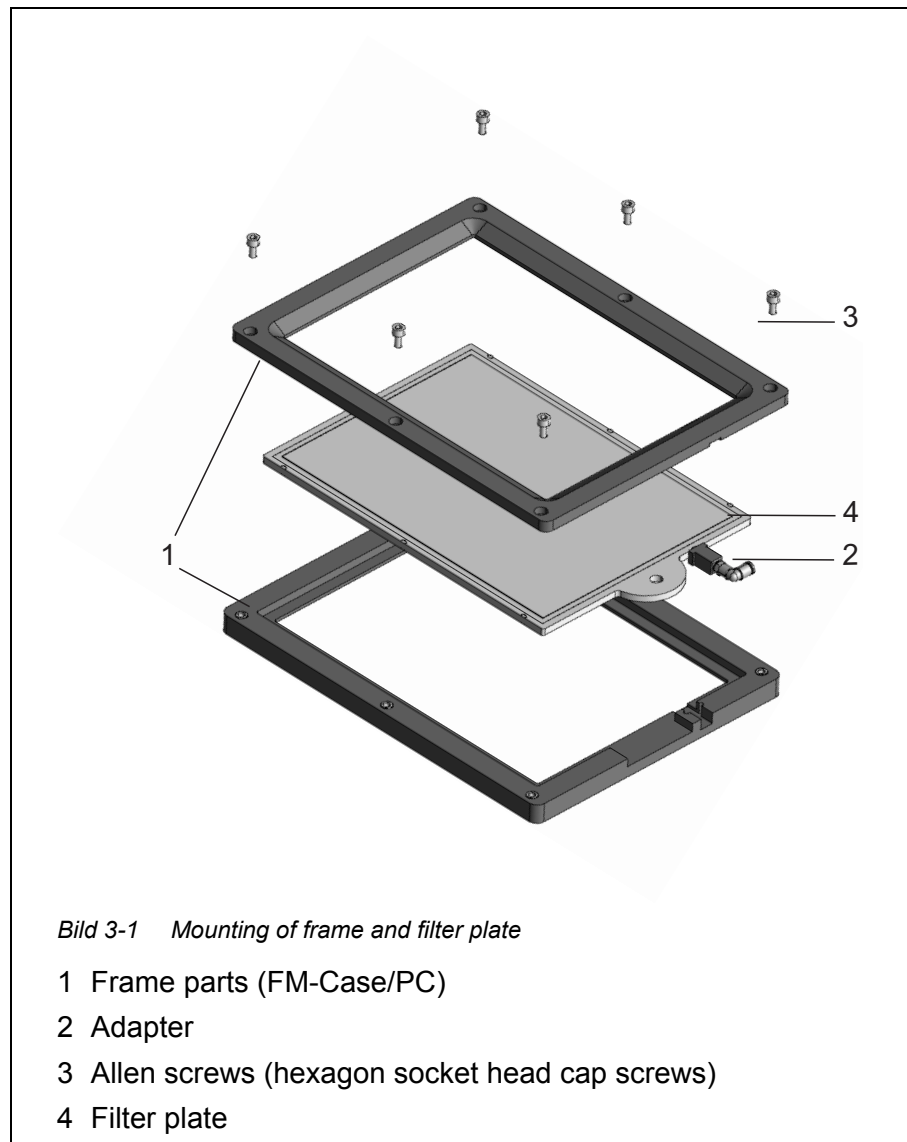
### 2.3 Filter/PC

- 1 x filter plate
- 1 x adapter (preassembled)

#### **NOTE**

**If possible, never dismount the adapter from the filter plate as otherwise dirt might penetrate and the sealing be damaged.**

### 3 Mounting / dismantling of the filter module



#### Mounting

- 1 Place the lower frame part (1) on a clean, flat surface. When doing so, the cut-out for the adapter must point upward.
- 2 Insert the filter plate (4) with the mounted adapter (2). When doing so, press the adapter into the cut-out of the lower frame part.
- 3 Put on the upper frame part (1) and fix it to the lower frame part with the supplied Allen screws (3) (Allen wrench size: 5).



The frame only serves as a bracket, not as a seal. The filter plate is tight itself.

**NOTE**

**Make sure that the frame is clean for the mounting. If solid particles such as sand grains are between the frame and filter plate, the membrane could be damaged when the frame parts are screwed together.**

**Disassembly**

To disassemble the frame and filter plate, proceed in reverse order of installation.

## 4 Installing the filter module



*Bild 4-1 Filtration unit (filter module mounted on the guide slide)*

- 1 Fix the filter module to the height adjustable guide slide (scope of delivery: suction tube) with the aid of 2 Allen screws (Allen wrench size 4). The tube connections must point downward.



The blue sample tube must be clean, especially where it should be connected. Dirt particles in the sample flow can, for example, block the valves.

- 2 Connect the blue sample tube to the quick coupling of the adapter of the filter plate. The adapter (see pos. 2 in Bild 3-1) is freely rotatable.
- 3 Submerge the filtration unit in the basin or channel.

- 4 Further proceeding as described in the operating manual of your analyzer (chapter COMMISSIONING).



Bild 4-2 Filtration unit (filter module mounted on the guide slide)

## 5 Maintenance / cleaning

### 5.1 Cleaning the filter plate

When to clean the filter plate can be determined empirically based on the negative pressure display on the filtration pump.

- With a delivery height of approx. 2 m and a new filter plate, the negative pressure is approx. -0.3 bar.  
Every meter of delivery height increases the negative pressure by



approx. -0.1 bar.

If the negative pressure increases by a further -0.3 ... -0.4 bar with time, the filter plate is covered with solid matter from the sample and has to be cleaned.

- When the contamination of the filter plate grows, the negative pressure in the non-active condition of the filtration pump increases.
- If there is still negative pressure after cleaning, the suction line may possibly be blocked.



The mechanical or chemical cleaning of the filter plate may take some time. We recommend: Use a replacement filter module (FM/PC) during the cleaning process to keep the downtime of the analyzer as short as possible.

Prior to starting the cleaning process, switch off the filtration pump (with the Stop key, or switch off the analyzer completely).

#### **NOTE**

**The filter plate is easily damaged.**

**Never touch the filter plate with sharp-edged objects or place any objects on it.**

**Pressure on the filter plate must only be applied from the outside.**

**No counter pressure may build up through the suction line.**

The filter plate can be cleaned either mechanically or chemically.



Prior to removing or plugging in the sample tube, clean it with clear water and a cloth, for example. Dirt particles in the sample flow can, for example, block the valves.

#### **Maintenance interval**

2 to 8 weeks, depending on the application

### **5.2 Mechanical cleaning**

#### **Preparations**

- 1 Put the analyzer in the safe state suitable for maintenance and repair work.  
The steps required are listed in the operating manual of the analyzer (chapter Maintenance).
- 2 Switch off the filtration pump with the Stop key.
- 3 Pull the filtration unit out of the basin or channel.
  - The filter module does not have to be separated from the guide slide!

- Do not dismantle the filter plate (Filter/PC) from the frame (FM-Case/PC).
- 4 Rinse off any coarse contamination with low water pressure (e.g. with a watering can or wash bottle).
  - 5 Then carefully remove the coating from the filter plate using the soft special brush (scope of delivery FM-Case/PC). Normally it is easy to see the brownish coating coming off while the lighter surface of the filter plate appears.

**NOTE**

**Do not press the special brush too firmly on the surface of the filter plate and do not change the moving direction of the brush (do not scrub).**

- 6 After cleaning, check both sides of the filter plate for damage.
- 7 Thoroughly clean the special brush under running water, dry it and store in a dust free place until the next use.
- 8 Submerge the cleaned filtration unit in the basin or channel.
- 9 Switch on the filtration pump with the Start key.

**Restarting the measuring operation**

Carry out the general steps to restore the readiness to measure at the analyzer (see operating manual of your analyzer, chapter Maintenance).

**5.3 Chemical cleaning**

Chemical cleaning is recommended if mechanical cleaning no longer achieves any significant improvement, i.e. the negative pressure on the manometer no longer decreases significantly after mechanical cleaning.

In this case, the filter plate is blocked. The blockage is mostly organic and can only be removed by chemical cleaning.

The chemical cleaning is carried out with the aid of a suitable container (Filter-CL) for the cleaning bath. The amount of cleaning solution required depends on the shape and size of the cleaning container.

**Cleaning solution**

In most cases, organic blockages can easily be removed with an aqueous sodium hypochlorite solution (chlorine bleaching agent, NaClO, 1 % active chlorine). In some cases, NaOH 4 % (sodium hydroxide) has proven effective.

In the event of calcification, diluted hydrochloric acid (HCl) is recommended (0.01 mol/l HCl, 0.036%, pH 2).

### Preparing the cleaning solution

The cleaning solution for the filter plate can be made from different detergent concentrates by diluting with water. Prepare the cleaning solution according to the following table. It can be mixed in the cleaning container.

Base solution *	Preparation instructions	Yield
Household hygienic cleaner based on sodium hypochlorite	Add sufficient water to 1.5 l hygienic cleaner so that the volume is 6 l	6 l
Technical sodium hypochlorite solution (13 % active chlorine)	Add sufficient water to 300 ml solution so that the volume is 5 l	5 l

\* Suppliers of the source solutions: see operating manual of your analyzer.



#### **WARNING**

**Dangerous chemicals.**

**Improper use of chemicals can cause damage to your health.**

**Heed the following rules:**

**Read the labels of the chemicals containers and follow the safety instructions.**

**Wear your personal protective equipment (lab coat, protective goggles, chemical resistant protective gloves).**

### Pre-cleaning

Prior to each chemical cleaning, pre-clean the membrane with the special brush and rinse it with water. See section 5.2 MECHANICAL CLEANING.

### Chemical cleaning

- 1** Dismount the filter module from the guide slide.
- 2** Complete submerge the filter module (filter plate in the frame) in the cleaning container with the cleaning solution for the filter plate.
- 3** Start with a reaction time of 30 minutes.

- 4 Monitor the success of the cleaning and extend the reaction time as necessary.
- 5 After the chemical cleaning, rinse the filter module with clean water.



Even filter plates that are supposedly irreversibly blocked may be restored by leaving them in the cleaning solution for a longer period of time and then rinsing them several times.

#### Restarting operation

- 1 Remount and secure the cleaned filter module on the guide slide.
- 2 Submerge the filtration unit in the basin or channel.
- 3 Switch on the filtration pump with the Start key.
- 4 Let the filtration pump work for some time to completely remove the detergents from the filter plate and suction tube.

#### Restarting the measuring operation

Carry out the general steps to restore the readiness to measure at the analyzer (see operating manual of your analyzer, chapter Maintenance).

### 5.4 Exchanging the filter plate

#### **NOTE**

**The filter plate is easily damaged. Never touch the filter plate with sharp-edged objects or place any objects on it.**

#### Maintenance interval

As necessary, if cleaning does not achieve any improvement.

Proceed as follows when you want to exchange the filter plate:

#### Preparations

- 1 Put the analyzer in a safe state suitable for maintenance and repair work.  
The steps required are listed in the operating manual of the analyzer (chapter Maintenance).
- 2 Switch off the filtration pump with the Stop key.
- 3 Remove the filtration unit from the medium.

- 4 Clean the filtration unit.
- 5 Dismount the filter module from the guide slide.
- 6 Unscrew the Allen screws of the frame (6 hexagon socket screws).
- 7 Remove the used filter plate with the adapter.
- 8 Clean the frame parts.
- 9 Remount the new filter plate in the frame (see section 3 MOUNTING / DISMANTLING OF THE FILTER MODULE and section 4 INSTALLING THE FILTER MODULE).
- 10 Submerge the filtration unit in the basin or channel.
- 11 Switch on the filtration pump with the Start key.

#### Restarting the measuring operation

Carry out the general steps to restore the readiness to measure of the analyzer (see operating manual of your analyzer, chapter Maintenance).

#### 5.5 Storing a used filter plate

Proceed as follows when you want to store the filter plate:

- 1 Clean the filter plate mechanically.
- 2 Clean the filter plate chemically.
- 3 Rinse the filter plate under running tap water.
- 4 Protect the filter plate against drying out by storing it in the Filter-CL cleaning container or in a closed plastic bag.

#### **NOTE**

**Protect the filter plate from drying out. If the filter plate dries out, it becomes hydrophobic, blocked and no more sample solution can go through.**

#### Actions if the filter plate has dried out

If the filter plate has dried out anyway, proceed as follows: Submerge the filter plate in a 30 % ethanol or spirit solution for about 60 seconds (approx. 5 l solution are required for the filter plate to be completely submerged in the Filter-CL cleaning container). This reduces the surface tension of the filter plate, and the flow rate should come up to the usual value. For fault-free operation, the filter

plate must not dry out again, otherwise the procedure has to be repeated.

## 6 Technical data

<b>Dimensions</b>	Frame	L 355.5 mm x W 266.5 mm x D 27.5 mm
	<b>Materials</b>	
	Frame	PVC
	Screws	Stainless steel V4A
	Adapter	Stainless steel V4A, PVDF, PVC

## Contact Information

### Ordering & Technical Support

Telephone: (800) 897-4151  
(937) 767-7241  
Monday through Friday, 8:00 AM to 5:00 PM ET

Fax: (937) 767-1058

Email: [info@ysi.com](mailto:info@ysi.com)

Mail: YSI Incorporated  
1725 Brannum Lane  
Yellow Springs, OH 45387  
USA

Internet: [www.ysi.com](http://www.ysi.com)

When placing an order please have the following information available:

- *YSI account number (if available)*
- *Model number or brief description*
- *Quantity*
- *Name and Phone Number*
- *Billing and shipping address*
- *Purchase Order or Credit Card*

### Service Information

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When returning a product for service, include the Product Return form with cleaning certification. The form must be completely filled out for an YSI Service Center to accept the instrument for service. The Product Return form may be downloaded at [www.ysi.com](http://www.ysi.com) and clicking on the 'Support' tab.







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- 2) a leading global water technology company.

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