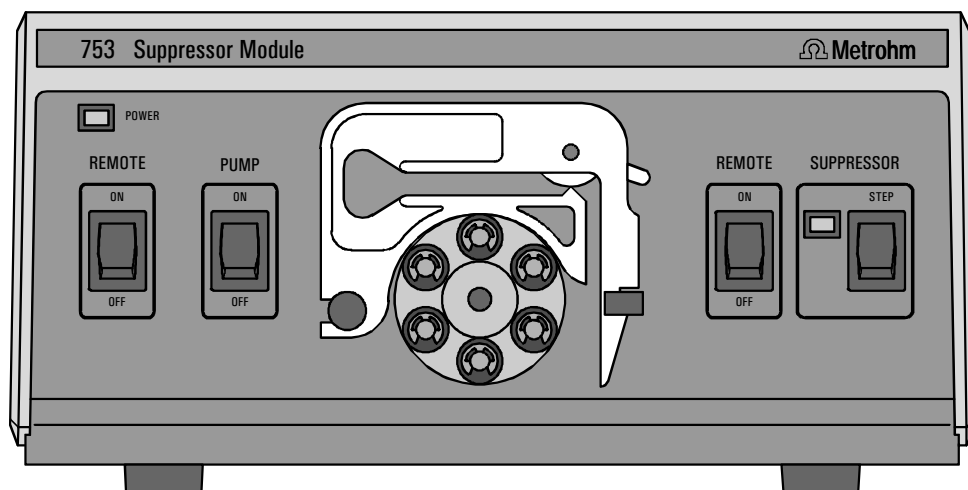


753 Suppressor Module



8.753.1003 Instructions for Use

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1 Introduction

1.1 Instrument description

The **753 Suppressor Module** consists of a **suppressor block** with its corresponding **control unit**; this contains an additional 2-channel peristaltic pump.

Ion chromatographic analyses with chemical suppression can be carried out with the suppressor built into the **suppressor block**. The suppressor consists of a total of 3 suppressor units which are in turn used for suppression, regenerated with sulfuric acid and rinsed with water. In order to record each new chromatogram under comparable conditions a freshly regenerated suppressor unit is normally used. Switching is either carried out automatically together with valve switching or manually.

At the **control unit** the suppressor can either be switched to the next position manually or by remote control via the remote interface. The built-in peristaltic pump, which delivers the solutions required for operating the suppressor, can also be switched on by remote control or manually.

The 753 Suppressor Module is particularly suitable for retrofitting the 690 Ion Chromatograph for chemical suppression in a simple manner. This application is described in detail in these instructions for use.

The 753 Suppressor Module can also be used together with the 732 IC Detector and the 733 IC Separation Center (e.g. for the realization of a complete two-channel IC system with only one 733 Separation Center). Of course the 753 Suppressor Module can also be combined with all other HPLC components currently on the market.

1.2 Parts and controls

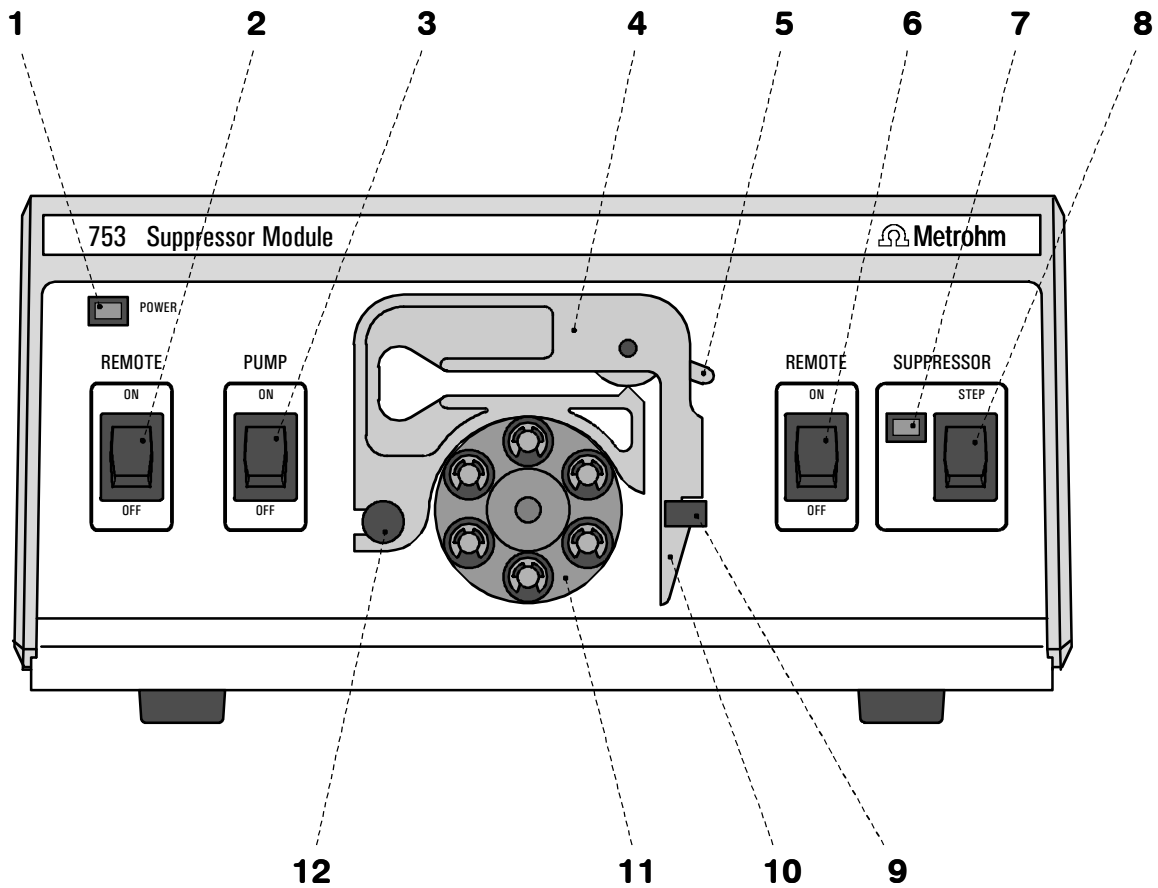


Fig. 1: Front of the 753 Suppressor Module

<p>1 Power on lamp Lights up when instrument is switched on</p>	<p>7 Suppressor position display Is lit up when the suppressor is "in position"</p>
<p>2 Pump Remote ON/OFF On/Off switch for remote control of the pump</p>	<p>8 Suppressor step Switches the suppressor to the next position (manual operation mode)</p>
<p>3 Pump ON/OFF On/Off switch for the pump (manual operation mode)</p>	<p>9 Holding clamp For locking the tubing cartridge into place</p>
<p>4 Tubing cartridge For 6.1826.050 Pump tubing</p>	<p>10 Snap-action lever For releasing the tubing cartridge</p>
<p>5 Contact pressure lever For adjusting the contact pressure</p>	<p>11 Pump drive Roller head with contact rollers</p>
<p>6 Suppressor Remote ON/OFF On/Off switch for remote control of the suppressor</p>	<p>12 Mounting pin For attaching the tubing cartridge</p>

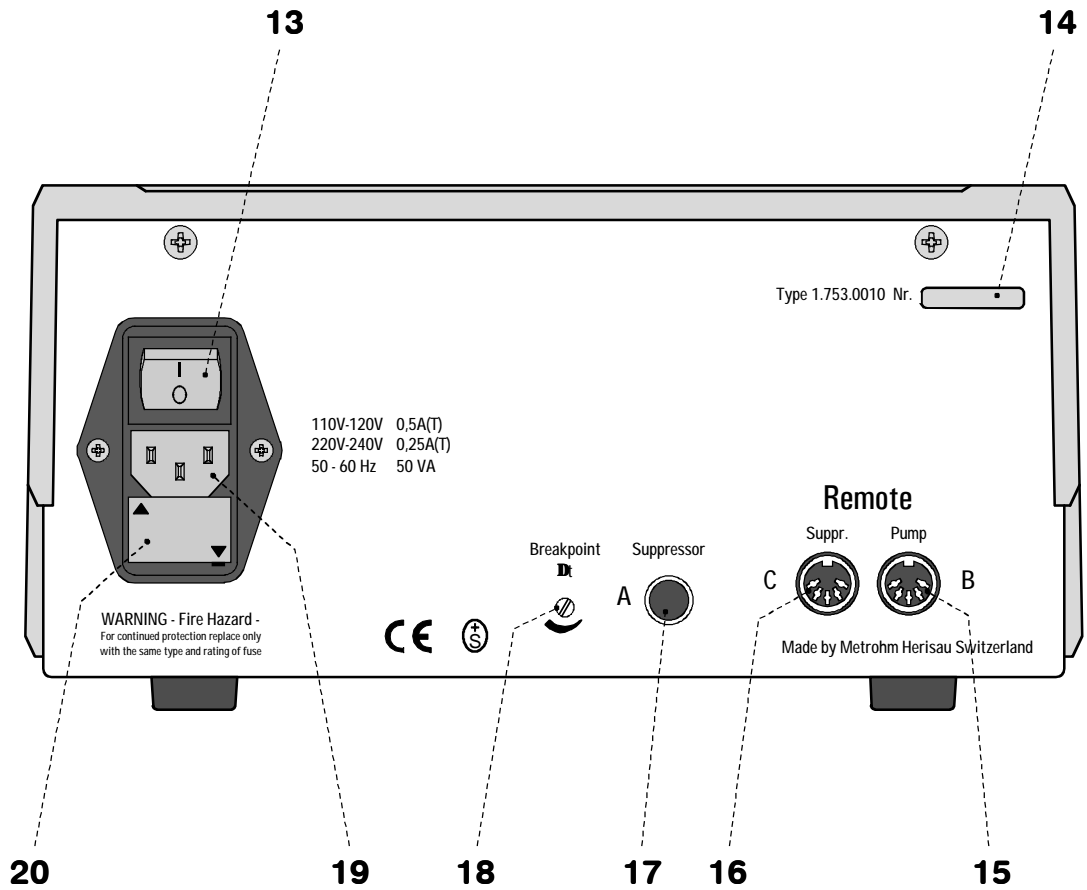


Fig. 2: Rear of the 753 Suppressor Module

<p>13 Mains switch For switching the instrument on/off: I = ON 0 = OFF</p>	<p>17 Connection for suppressor block</p>
<p>14 Serial number</p>	<p>18 Adjustment screw for braking range</p>
<p>15 Remote interface for pump Remote I/O lines for connection of external devices (e.g. 732 IC Detector)</p>	<p>19 Mains connection plug Mains connection, see <i>section 2.2</i></p>
<p>16 Remote interface for suppressor Remote I/O lines for connection of external devices (e.g. 732 IC Detector)</p>	<p>20 Fuse holder Changing the fuses, see <i>section 2.2</i></p>

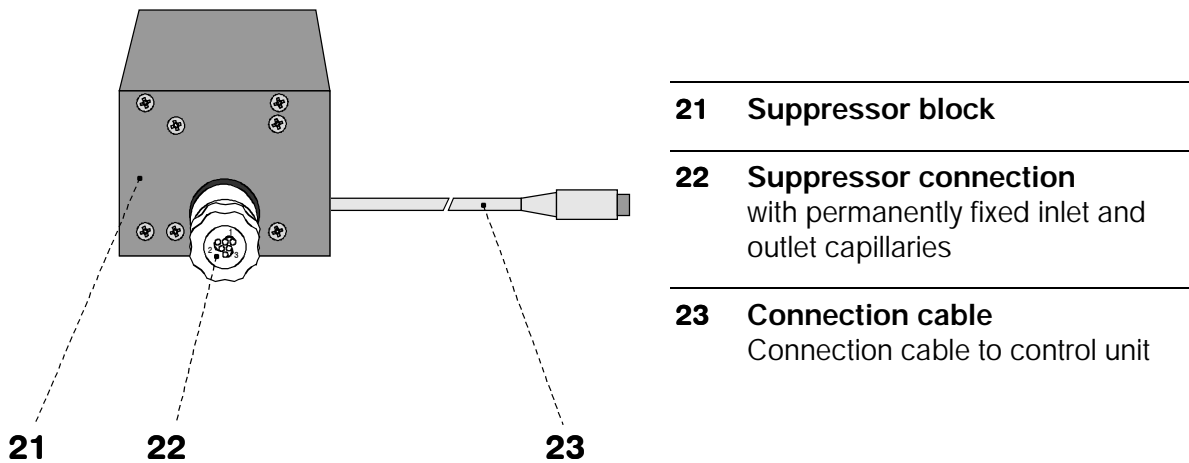


Fig. 3: Suppressor block (1.753.0100)

1.3 Information about the Instructions for Use



Please read through these Instructions for Use carefully before you put the 753 Suppressor Module into operation. The Instructions for Use contain information and warnings to which the user must pay attention in order to assure safe operation of the instruments.

1.3.1 Organization





These **8.753.1003 Instructions for Use** for the 753 Suppressor Module provide a comprehensive overview of the startup procedure, operation, fault rectification and technical specifications of these instruments. The Instructions for Use are organized as follows:

- Section 1 Introduction**
General description of instruments, parts and controls and safety notes
- Section 2 Installation**
Setting up, mains connection, attachment of accessories, connection to IC system
- Section 3 Operation**
Manual operation and operation via 690 Ion Chromatograph or 732 IC Detector
- Section 4 Faults – Maintenance**
Fault rectification, maintenance
- Section 5 Appendix**
Technical data, standard equipment, options, warranty, declarations of conformity, index

To find the required information on the instruments please use either the **Table of contents** or the **Index** at the back.

1.3.2 Notation and pictograms

The following notations and pictograms (symbols) are used in these Instructions for Use:

<PUMP>	Switch or key
15	Part or control of 753
<u>52</u>	Part or control of 690
<u>89</u>	Part or control of 732/733
"Range"	Parameter or entry value at 732 IC Detector
<div style="border: 1px solid black; padding: 2px; width: fit-content; margin: auto;"> >PARAM/detector range: 1.00 mS/cm </div>	Display Text in display 1 of the 732 IC Detector
	Hazard This symbol draws attention to a possible danger to life or of injury if the associated directions are not followed correctly.
	Warning This symbol draws attention to possible damage to instruments or instrument parts if the associated directions are not followed correctly.
	Caution This symbol marks important information. First read the associated directions before you continue.
	Comment This symbol marks additional information and tips.

1.4 Safety notes

1.4.1 Electrical safety

While electrical safety in the handling of the 753 Suppressor Module is assured in the context of the specifications IEC 1010-1 (protection class I, degree of protection IP20), the following points should be noted:

- **Mains connection**



Setting the **mains voltage**, checking the **mains fuse** and the **mains connection** must be effected in accordance with the instructions in section 2.2.

- **Opening the 753 Suppressor Module**



When the 753 Suppressor Module is connected to the power supply the instrument must neither be opened nor should parts be removed from it, otherwise there is a danger of coming into contact with components which are live. Always disconnect the instrument from all voltage sources before you open it and ensure that the **mains cable is disconnected from mains connection 19 !**

- **Protection against static charges**



Electronic components are sensitive to static charging and can be destroyed by discharges. Before you touch any of the components inside the 753 Suppressor Module, you should earth yourself and any tools you are using by touching an earthed object (e.g. housing of the instrument or a radiator) to eliminate any static charges which exist.

1.4.2 General precautionary rules

- **Handling of solvents**



Check all pump tubings and all input and output lines periodically for possible leaks. Follow the relevant instructions regarding the handling of flammable and/or toxic solvents and their disposal.

- **Regular exchange of pump tubings**



Pump tubings are consumable material and must be replaced from time to time (see Section 4.2.4). Suitable measures must be taken so that any leak which might occur in the pump tubing or connections during unattended operation will cause no damage (placing the instrument at the bottom, collection device for any liquid which may leak out).

2 Installation

2.1 Setting up the instrument

2.1.1 Packaging

The 753 Suppressor Module is supplied together with the separately packed accessories in special packagings containing shock-absorbing foam linings designed to provide excellent protection. The actual instrument is packed in an evacuated polyethylene bag to prevent the ingress of dust. Please store all these special packagings as only they can assure damage-free transport of the instrument.

2.1.2 Check

After receipt, immediately check whether the shipment is complete and has arrived without damage (compare with delivery note and list of accessories in *section 5.2*). In the case of transport damage, see instructions in *section 5.4.1 "Warranty"*.

2.1.3 Location

Position the instruments in the laboratory at a location convenient for operation, free from vibrations and protected against a corrosive atmosphere and contamination by chemicals.

2.1.4 Arrangement of the instruments

The best position for the 753 Suppressor Module is beside the 690 Ion Chromatograph and below the 709 IC Pump.



The 753 Suppressor Module should always be placed at the bottom of the instrument stack so that any leaks which may occur in the pump tubing or connections cannot cause damage to the other instruments by leakage of corrosive liquids (e.g. H₂SO₄).

2.2 Mains connection



Follow the instructions below for connecting to the power supply. If the instrument is operated with the mains voltage set wrongly and/or wrong mains fuse there is a danger of fire!

2.2.1 Setting the mains voltage

Before switching on the 753 Suppressor Module for the first time, check that the mains voltage set on the instrument (see *Fig. 2*) matches the local mains voltage. If this is not the case, you must reset the mains voltage on the instrument as follows:

1 Disconnect mains cable

Disconnect mains cable from mains connection plug **19** of the 753 Suppressor Module.

2 Remove fuse holder

Using a screwdriver, loosen fuse holder **20** below the mains connection **19** and take out completely.

3 Check fuse

Carefully take the fuse installed for the desired mains voltage out of fuse holder **20** and check its specifications (the position of the fuse in the fuse holder is marked by the white arrow imprinted next to the mains voltage range):

100¼120 V 0.5 A (slow-blow) Metrohm No. U.600.0013

220¼240 V 0.25 A (slow-blow) Metrohm No. U.600.0010

4 Insert fuse

Change fuse if necessary and reinsert in fuse holder **20**.

5 Install fuse holder

Depending on the desired mains voltage, insert fuse holder **20** in the 753 Suppressor Module so that the corresponding mains voltage range can be read normally and the adjacent white arrow points to the white bar imprinted below the fuse holder (see *Fig. 4*).

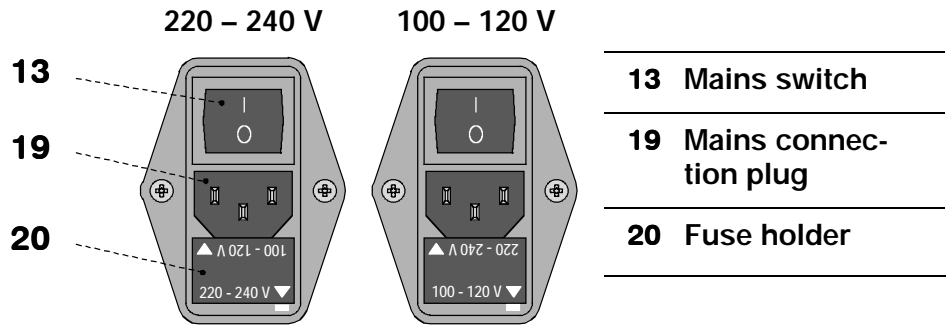


Fig. 4: Setting the mains voltage

2.2.2 Fuses

One of the two fuses 0.5 A/slow-blow for 100...120 V or 0.25 A/slow-blow for 220...240 V is installed in fuse holder **20** of the 753 Suppressor Module as standard.



Ensure that the instrument is never put into operation with fuses of another type, otherwise there is danger of fire!

For checking or changing fuses, proceed as described in *section 2.2.1*.

2.2.3 Mains cable and mains connection

Mains cable

The instrument is supplied with one of three mains cables:

- 6.2122.020 with plug SEV 12 (Switzerland, ...)
- 6.2122.040 with plug CEE(7), VII (Germany, ...)
- 6.2133.070 with plug NEMA 5-15 (USA, ...)

which are three-cored and fitted with a plug with an earthing pin. If a different plug has to be fitted, the yellow/green lead (IEC standard) must be connected to protective earth (protection class I).



Any break in the earthing inside or outside the instrument can make it a hazard!

Mains connection

Plug the mains cable into mains connection plug **19** of the 753 Suppressor Module (see *Fig. 4*).

2.2.4 Switching the instrument on/off

The 753 Suppressor Module is switched on and off using mains switch **13**. When the instrument is switched on lamp **1** lights up.

2.3 Connection to the 690 Ion Chromatograph

2.3.1 Electrical connection

In order to allow remote operation of the suppressor by the 690 Ion Chromatograph, connection **17** "Suppressor" of the 753 Suppressor Module must be connected to the "Integrator Start" connection of the 690 Ion Chromatograph with the 6.2128.090 cable as shown in Fig. 5. Additionally switch **6** <REMOTE> on the front of the 753 Suppressor Module must be switched to "ON".

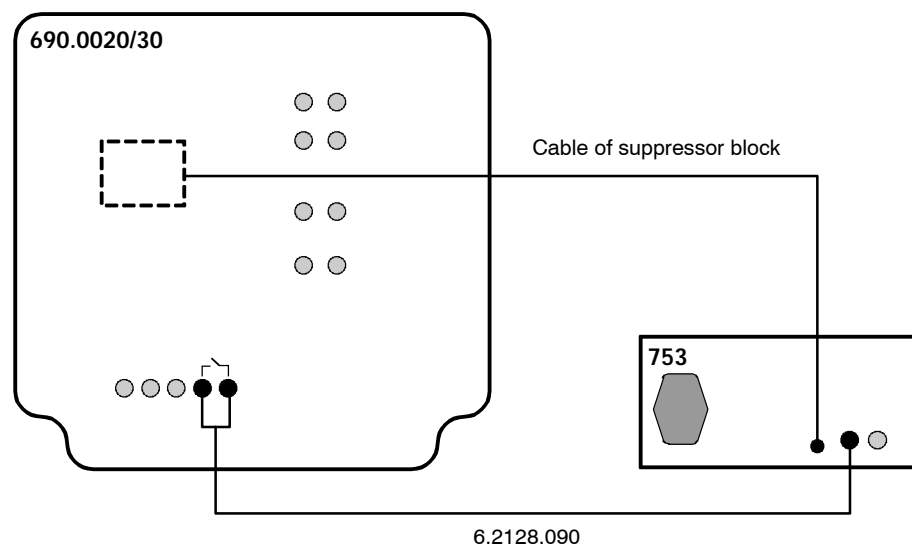


Fig. 5: Connection 753 Suppressor Module – 690 Ion Chromatograph

2.3.2 Connection of the suppressor block

The 1.753.0100 suppressor block must first be inserted in the 690 Ion Chromatograph and connected to the 753 Suppressor Module. The inlet and outlet capillaries mounted on the suppressor are then connected up. Proceed as follows:

1 Insert suppressor block

- Push lifting platform **52** together with the fixed detector block **54** located inside the 690 Ion Chromatograph down as far as it will go.
- Place suppressor block **21** on detector block **54** in such a way that suppressor connection **22** points in the direction of the door.

2 Connect suppressor block

- Remove the plastic stopper from opening **17** on the rear wall of the 690 Ion Chromatograph and push cable **23** mounted on the suppressor block **21** through this opening.
- Connect cable **23** to connection **17** "Suppressor" of the 753 Suppressor Module (see Fig. 5).

3 Connect column to injector

- Connect separating column **63** to capillary connection **65** leading to the injector according to section 3.7 of the 690 Instructions for Use.

4 Rinse column

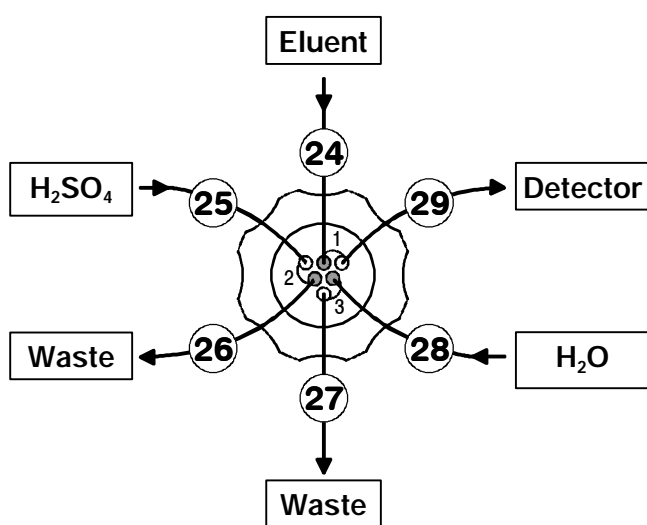
- Rinse separating column **63** with eluent for about 10 min according to section 3.7 of the 690 Instructions for Use.

5 Connect column to suppressor

- Screw inlet capillary **24** marked with "Eluent" at suppressor connection **22** (see Fig. 6) to outlet end of separating column **63** using a 6.2744.010 compression fitting.

6 Connect suppressor to detector block

- Screw outlet capillary **29** marked with "Detector" at suppressor connection **22** to a 6.2620.060 coupling using a 6.2744.010 compression fitting.
- Screw inlet capillary **59** of detector block **54** to the other end of the 6.2620.060 coupling.



- | | |
|-----------|--|
| 24 | Suppressor inlet capillary for eluent |
| 25 | Suppressor inlet capillary for H ₂ SO ₄ |
| 26 | Suppressor outlet capillary for H ₂ SO ₄ |
| 27 | Suppressor outlet capillary for H ₂ O |
| 28 | Suppressor inlet capillary for H ₂ O |
| 29 | Suppressor outlet capillary for eluent |

Fig. 6: Connections at suppressor

7 Attach pump tubings

- Loosen both tubing cartridges **4** from the holding clamp **9** by pressing down snap-action lever **10** and remove from mounting pin **12** on the 753 Suppressor Module (see *Fig. 1*).
- Press contact pressure lever **5** on both tubing cartridges down as far as it will go.
- Insert a length of pump tubing **33** (6.1826.050) into each of the tubing cartridges as shown in *Fig. 7*. The white-yellow stopper **34** must click into the corresponding holder on the left-hand side of the tubing cartridge.
- Place the tubing cartridges on mounting pin **12** and press down on the right-hand side until snap-action lever **10** clicks into position on holding clamp **9**. Take care that no kinks are formed in the pump tubing.

8 Suppressor connection 2: H₂SO₄

- Pull the inlet capillary **25** marked with "H₂SO₄" at suppressor connection **22** (see *Fig. 6*) through one of the rear panel openings **29** of the 690 Ion Chromatograph or through the door gap in the right-hand lower corner of the interior door **13**.
- Mount a PEEK compression fitting **31** (6.2744.010) on the end of inlet capillary **25** and screw this on to coupling **32** (6.2744.030) (see *Fig. 7*).
- Push coupling **32** on to the outlet end of the first pump tubing **33** (see *Fig. 7*).
- Mount suction tubing: cut a piece of PTFE Tubing **30** (6.1803.020) to the desired length.
- Mount a PEEK compression fitting **31** (6.2744.010) on one end of PTFE tubing **30** and screw this on to coupling **32** (see *Fig. 7*).
- Push coupling **32** on to the inlet end of the first pump tubing **33** (see *Fig. 7*).
- Immerse the other end of the suction tubing in a vessel containing regeneration solution (normally 20 mmol/L H₂SO₄) and fix in place.
- Pull outlet capillary **26** marked with "Waste" at suppressor connection **22** (see *Fig. 6*) through one of the rear panel openings **29** of the 690 Ion Chromatograph.
- Lead outlet capillary **26** to a sufficiently large waste container and fix in place.

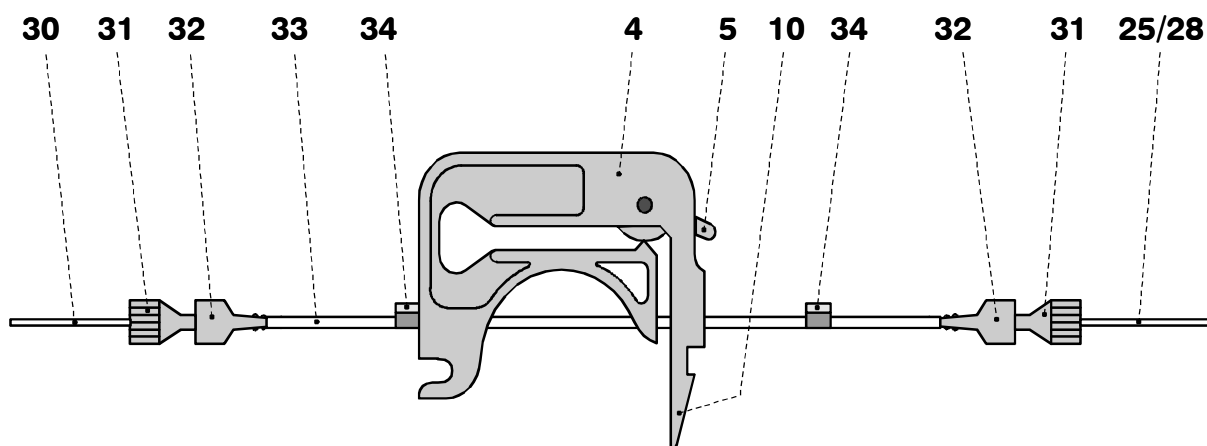


Fig. 7: Installing pump tubings

4	Tubing cartridge	30	PTFE tubing (6.1803.020)
5	Contact pressure lever	31	PEEK compression fitting (6.2744.010)
10	Snap-action lever	32	Coupling (6.2744.030)
25	Suppressor inlet capillary for H ₂ SO ₄	33	Pump tubing (6.1826.050)
28	Suppressor inlet capillary for H ₂ O	34	Stopper (white-yellow)

9 Suppressor connection 3: H₂O

- Pull the inlet capillary **28** marked with "H₂O" at suppressor connection **22** (see Fig. 6) through one of the rear panel openings **29** of the 690 Ion Chromatograph or through the door gap in the right-hand lower corner of the interior door **13**.
- Mount a PEEK compression fitting **31** (6.2744.010) on the end of inlet capillary **28** and screw this on to coupling **32** (6.2744.030) (see Fig. 7).
- Push coupling **32** on to the outlet end of the second pump tubing **33** (see Fig. 7).
- Mount suction tubing: cut a piece of PTFE Tubing **30** (6.1803.020) to the desired length.
- Mount a PEEK compression fitting **31** (6.2744.010) on one end of PTFE tubing **30** and screw this on to coupling **32** (see Fig. 7).
- Push coupling **32** on to the inlet end of the second pump tubing **33** (see Fig. 7).
- Immerse the other end of the suction tubing in a vessel containing rinsing solution (normally dist. H₂O) and fix in place.

- Pull outlet capillary **27** marked with "Waste" at suppressor connection **22** (see *Fig. 6*) through one of the rear panel openings **29** of the 690 Ion Chromatograph.
- Lead outlet capillary **27** to a sufficiently large waste container and fix in place.

10 Startup of 753 Suppressor Module

- Set switch <REMOTE> **2** on 753 Suppressor Module to "OFF".
- Switch on 753 Suppressor Module with mains switch **13** and set switch <PUMP> **3** to "ON".
- Adjust the contact pressure for both tubing cartridges: press contact pressure lever **5** upwards until the solutions just start to be drawn in. Then press the contact pressure lever upwards until it clicks once more to obtain optimal contact pressure.
- Before switching the suppressor to the next position for the first time rinse all three suppressor units with solution for 5 min.
- Check all tubing from the storage vessels through the tubing cartridges and the suppressor up to the waste containers for leakage of liquids. If liquid escapes anywhere the corresponding compression fitting must be tightened further or changed.



*Pump tubings are consumable material with a lifetime which depends on the contact pressure. This is why the tubing cartridges should be raised completely by loosening snap-action lever **10** on the right-hand side if the pump is to remain switched off for a considerable length of time (the set contact pressure remains unchanged).*

2.4 Connection to the 732/733 IC system

2.4.1 Electrical connection

In order to allow remote operation of the suppressor and pump via the 732 IC Detector, connection **17** of the 753 Suppressor Module must be connected to the "Remote" connection of the 732 IC Detector by means of the 6.2143.210 cable (available as an option) according to *Fig. 8*. Both switches **2** and **6** <REMOTE> on the front of the 753 Suppressor Module must additionally be set to "ON" to permit remote operation.

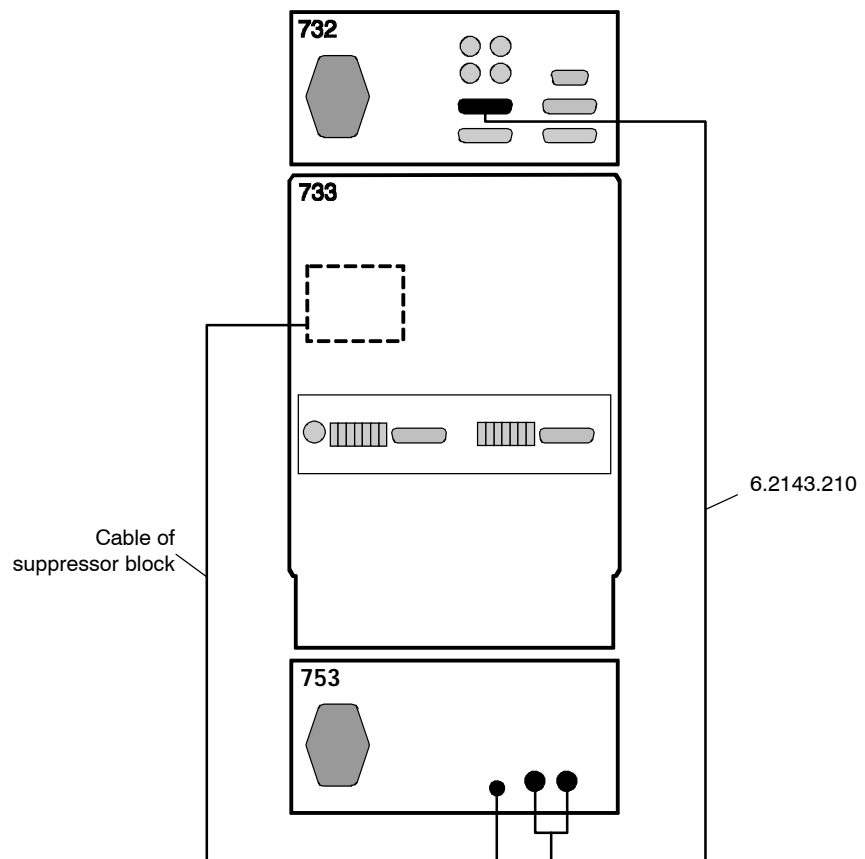


Fig. 8: Connection 753 Suppressor Module – 732/733 IC system

2.4.2 Connection of the suppressor block

The 1.753.0100 suppressor block must first be inserted in the 733 IC Separation Center and connected to the 753 Suppressor Module. The inlet and outlet capillaries mounted on the suppressor are then connected up. Proceed as follows:

1 Insert suppressor block

- *733.0010 IC Separation Center (1-channel system):*
Place suppressor block **21** to the right-hand side of detector block **77** (see *Fig. 14 of 732/733 Manual*) on the floor of the inner chamber in such a way that suppressor connection **22** points in the direction of the door.
- *733.0020 IC Separation Center (two-channel system):*
Place suppressor block **21** on the floor of the inner chamber (either instead of a pulsation damper **67** or in front of both pulsation dampers, see *Fig. 14 of 732/733 Manual*).

2 Connect suppressor block

- *733.0010 IC Separation Center (one-channel system):*
Remove the plastic stopper from opening **31** on the rear panel of IC Separation Center 733 and push cable **23** mounted on the suppressor block **21** through this opening.
- *733.0020 IC Separation Center (two-channel system):*
Remove the plastic stopper from opening **41** or **43** on the 733 IC Separation Center and push cable **23** mounted on the suppressor block **21** through the opening.
- Connect cable **23** to connection **17** "Suppressor" of the 753 Suppressor Module (see *Fig. 8*).

3 Connect column to injector

- see *section 2.8.6 of 732/733 Manual*

4 Rinse column

- see *section 2.8.6 of 732/733 Manual*

5 Connect column to suppressor

- Screw inlet capillary **24** marked with "Eluent" at suppressor connection **22** (see *Fig. 6*) to outlet end of separating column **72** using a 6.2744.010 compression fitting.

6 Fix column

- Insert one or two column holders **80** (6.2027.030, 6.2027.040 or 6.2027.050) in mounting rails **79** and fasten separating column in the column holder.

7 Connect suppressor to detector block

- Screw outlet capillary **29** marked with "Detector" at suppressor connection **22** to coupling **92** (6.2620.060) using a 6.2744.010 compression fitting.
- Screw inlet capillary **78** of detector block **77** to the other end of the coupling **92**.

8 Fix connection suppressor – detector block

- Insert one of the column holders **80** (6.2027.030, 6.2027.040 or 6.2027.050) in mounting rail **79** and fasten coupling **92** in the column holder.

9 Attach pump tubings

- Loosen both tubing cartridges **4** from the holding clamp **9** by pressing down snap-action lever **10** and remove from mounting pin **12** on 753 Suppressor Module (see *Fig. 1*).
- Press contact pressure lever **5** on both tubing cartridges down as far as it will go.
- Insert a length of pump tubing **33** (6.1826.050) into each of the tubing cartridges as shown in *Fig. 7*. The white-yellow stopper **34** must click into the corresponding holder on the left-hand side of the tubing cartridge.
- Place the tubing cartridges on mounting pin **12** and press down on the right-hand side until snap-action lever **10** clicks into position on holding clamp **9**. Take care that no kinks are formed in the pump tubing.

10 Suppressor connection 2: H₂SO₄

- Pull the inlet capillary **25** marked with "H₂SO₄" at suppressor connection **22** (see *Fig. 6*) through one of the rear panel openings **41** or **43** of the 733 IC Separation Center.
- Mount a PEEK compression fitting **31** (6.2744.010) on the end of inlet capillary **25** and screw this on to coupling **32** (6.2744.030) (see *Fig. 7*).
- Push coupling **32** on to the outlet end of the first pump tubing **33** (see *Fig. 7*).
- Mount suction tubing: cut a piece of PTFE Tubing **30** (6.1803.020) to the desired length.
- Mount a PEEK compression fitting **31** (6.2744.010) on one end of PTFE tubing **30** and screw this on to coupling **32** (see *Fig. 7*).
- Push coupling **32** on to the inlet end of the first pump tubing **33** (see *Fig. 7*).
- Immerse the other end of the suction tubing in a vessel containing regeneration solution (normally 20 mmol/L H₂SO₄) and fix in place.
- Pull outlet capillary **26** marked with "Waste" at suppressor connection **22** (see *Fig. 6*) through one of the rear panel openings **41** or **43** of the 733 IC Separation Center.
- Lead outlet capillary **26** to a sufficiently large waste container and fix in place.

11 Suppressor connection 3: H₂O

- Pull the inlet capillary **28** marked with "H₂O" at suppressor connection **22** (see *Fig. 6*) through one of the rear panel openings **41** or **43** of the 733 IC Separation Center.
- Mount a PEEK compression fitting **31** (6.2744.010) on the end of inlet capillary **28** and screw this on to coupling **32** (6.2744.030) (see *Fig. 7*).
- Push coupling **32** on to the outlet end of the second pump tubing **33** (see *Fig. 7*).
- Mount suction tubing: cut a piece of PTFE Tubing **30** (6.1803.020) to the desired length.
- Mount a PEEK compression fitting **31** (6.2744.010) on one end of PTFE tubing **30** and screw this on to coupling **32** (see *Fig. 7*).
- Push coupling **32** on to the inlet end of the second pump tubing **33** (see *Fig. 7*).
- Immerse the other end of the suction tubing in a vessel containing rinsing solution (normally dist. H₂O) and fix in place.
- Pull outlet capillary **27** marked with "Waste" at suppressor connection **22** (see *Fig. 6*) through one of the rear panel openings **41** or **43** of the IC Separation Center 733.
- Lead outlet capillary **27** to a sufficiently large waste container and fix in place.

12 Startup of 753 Suppressor Module

- Set switch <REMOTE> **2** to "OFF".
- Switch on 753 Suppressor Module with mains switch **13** and set switch <PUMP> **3** to "ON".
- Adjust the contact pressure for both tubing cartridges: press contact pressure lever **5** upwards until the solutions just start to be drawn in. Then press the contact pressure lever upwards until it clicks once more to obtain optimal contact pressure.
- Before switching the suppressor to the next position for the first time rinse all three suppressor units with solution for 5 min.
- Check all tubing from the storage vessels through the tubing cartridges and the suppressor up to the waste containers for leakage of liquids. If liquid escapes anywhere the corresponding compression fitting must be tightened further or changed.



*Pump tubings are consumable material with a lifetime which depends on the contact pressure. This is why the tubing cartridges should be raised completely by loosening snap-action lever **10** on the right-hand side if the pump is to remain switched off for a considerable length of time (the set contact pressure remains unchanged).*

3 Operation

3.1 Handling the suppressor

General

The **Metrohm Suppressor Module MSM** for chemical suppression installed in the suppressor block consists of a total of 3 suppressor units which are in turn used for suppression, regenerated with sulfuric acid and rinsed with water. In order to record each new chromatogram under comparable conditions a freshly regenerated suppressor unit is normally used. Switching is either carried out automatically together with valve switching or manually.

Correct connections

The three inlets and outlets numbered 1...3 on the suppressor each have 2 permanently mounted PTFE capillaries, which must be connected as described in *sections 2.3.2 or 2.4.2* respectively (see *Fig. 6*).

Flow direction



The suppressor units must never be regenerated with H_2SO_4 in the same flow direction used for the eluent. You should thus always install the inlet and outlet capillaries as described in sections 2.3.2 or 2.4.2 respectively according to the scheme shown in Fig. 6.

Never switch when dry



The suppressor must never be switched in the dry state as there is a danger of blocking.

No recycling



The recycling process (returning the eluent to the storage vessel) must not be carried out when the suppressor is in operation.

3.2 Manual operation



The 753 Suppressor Module cannot be manually operated unless the installation has been carried out properly as described in section 2 (mains connection, attaching the pump tubing, connection to the IC system).



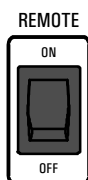
Switch instrument on/off

The 753 Suppressor Module is switched on and off using mains switch **13** on the rear of the instrument (see Fig. 2):

- I Instrument switched on
- 0 Instrument switched off



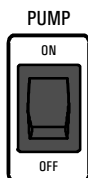
After the instrument has been switched on the power lamp **1** lights up to show that the instrument is ready for use.



Switch off remote control of the pump

In order to allow manual operation the remote control of the pump must be switched off with switch **2**.

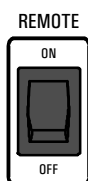
- ON Remote control switched on
- OFF Remote control switched off



Switch pump on/off

The drive of the pump is switched on and off with the switch **3** <PUMP>:

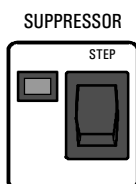
- ON Pump switched on
- OFF Pump switched off



Switch off remote control of the suppressor

In order to allow manual operation the remote control of the pump must be switched off with switch **6**.

- ON Remote control switched on
- OFF Remote control switched off



Rotate suppressor

The suppressor is switched to the next position by means of switch **8** <STEP>.

The position display **7** beside the switch shows whether the suppressor is in the correct position:

- Lamp on Suppressor in the right position
- Lamp off Suppressor in the wrong position or blocked (procedure see section 4.1)

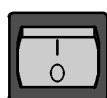
3.3 Operation via 690 Ion Chromatograph



The 753 Suppressor Module cannot be remotely operated via the 690 Ion Chromatograph unless the installation has been carried out properly as described in section 2 (mains connection, connection cable 690 – 753, attaching the pump tubing, connection to the IC system).

When operating the 753 Suppressor Module together with the 690 Ion Chromatograph the pump on the suppressor module must still be switched on and off manually. In contrast, the suppressor position can be automatically changed by the 690 Ion Chromatograph.

Switch instrument on/off



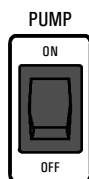
The 753 Suppressor Module is switched on and off using mains switch **13** on the rear of the instrument (see Fig. 2):

- I Instrument switched on
- O Instrument switched off



After the instrument has been switched on the power lamp **1** lights up to show that the instrument is ready for use.

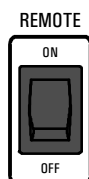
Switch pump on/off



The drive of the pump is switched on and off manually with the switch **3** <PUMP>:

- ON Pump switched on
- OFF Pump switched off

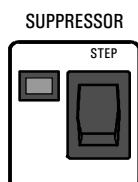
Switch on remote control of the suppressor



In order to allow remote operation via 690 Ion Chromatograph the remote control must be switched on with switch **6**.

- ON Remote control switched on
- OFF Remote control switched off

Rotate suppressor



When the injection valve on the 690 Ion Chromatograph is switched to the "Inject" position the suppressor is automatically brought to the next position.

The position display **7** beside switch **8** shows whether the suppressor is in the right position:

- Lamp on Suppressor in the right position
- Lamp off Suppressor in the wrong position or blocked (procedure see section 4.1)

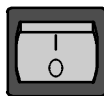
3.4 Operation via 732 IC Detector



The 753 Suppressor Module cannot be remotely operated via the 732 IC Detector unless the installation has been carried out properly as described in section 2 (mains connection, connection cable 732 – 753, attaching the pump tubing, connection to the IC system).

When operating the 753 Suppressor Module together with the 732 IC Detector and the 733 IC Separation Center both pump and the suppressor on the 753 Suppressor Module can be operated and switched automatically.

Switch instrument on/off



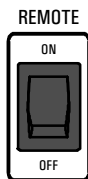
The 753 Suppressor Module is switched on and off using mains switch **13** on the rear of the instrument (see Fig. 2):

- I Instrument switched on
- 0 Instrument switched off



After the instrument has been switched on the power lamp **1** lights up to show that the instrument is ready for use.

Switch on remote control of the pump



In order to allow remote operation via 732 IC Detector the remote control must be switched on with switch **2**.

- ON Remote control switched on
- OFF Remote control switched off

Automatic pump switch-on when the 732 IC Detector is switched on

In order to start up the pump drive of the 753 Suppressor Module automatically when the 732 IC Detector is switched on alterations must be made to the basic settings (Setup, see section 4.4.1 of 732/733 Manual). The remote output lead 1 must be set to 1 (on, active, 0 V):

```
>SETUP/output
remote      10000000
```

When the 732 IC Detector is switched off the pump at the 753 Suppressor Module is also switched off.

Switch pump on/off in a program

In the 732 IC Detector the <PROGRAM> key can be used to create time programs with a maximum of 20 program steps (see *section 4.7.1 of 732/733 Manual*). The pump can be switched on or off at any program step by setting the remote output lead 1 to 1 (on, active, 0 V) or 0 (off, inactive, open) respectively:

Switch on:

>PROGRAM/edi t	XXX. X mi n
remote	1*****

Switch off:

>PROGRAM/edi t	XXX. X mi n
remote	0*****

Switch pump on/off at an event

In the 732 IC Detector the <EVENT> key can be used to program a maximum of 4 different events (see *section 4.7.3 of 732/733 Manual*). The pump can be switched on or off at any event by setting the remote output lead 1 to 1 (on, active, 0 V) or 0 (off, inactive, open) respectively:

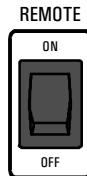
Switch on:

EVENT YY-MM-DD	HH: MM: SS
remote	1*****

Switch off:

EVENT YY-MM-DD	HH: MM: SS
remote	0*****

Switch on remote control of the suppressor



In order to bring the suppressor automatically to the next position via the 732 IC Detector the remote control of the suppressor must be switched on with switch **6**.

ON Remote control switched on
OFF Remote control switched off

Rotate suppressor in a program

In the 732 IC Detector the <PROGRAM> key can be used to create time programs with a maximum of 20 program steps (see *section 4.7.1 of 732/733 Manual*). With each program step the suppressor can be brought to the next position by setting remote output lead 2 to 1 (on, active, 0 V). This lead must later be returned to the setting 0 (off, inactive, open) before the suppressor can be switched to the next position.

Rotate:

```
>PROGRAM/edit   XXX. X mi n
remote          *1*****
```

Reset output lead:

```
>PROGRAM/edit   XXX. X mi n
remote          *0*****
```

Example

Automatically changing the suppressor position in "inject"-programs (for manual operation or with autosamplers).

```
PROGRAM
  progr.type:   inject
                0.0 remote *1*****
                0.1 remote *0*****
```

Rotate suppressor at an event

In the 732 IC Detector the <EVENT> key can be used to program a maximum of 4 different events (see *section 4.7.3 of 732/733 Manual*). At each event the suppressor can be brought into the next position by setting remote output lead 2 to 1 (on, active, 0 V). This lead must later be returned to the setting 0 (off, inactive, open) before the suppressor can be switched to the next position.

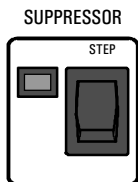
Rotate:

```
EVENT YY-MM-DD  HH: MM: SS
remote          *1*****
```

Reset output lead:

```
EVENT YY-MM-DD  HH: MM: SS
remote          *0*****
```

Suppressor position display



The position display **7** of the 753 Suppressor Module beside switch **8** shows whether the suppressor is in the right position:

- Lamp on Suppressor in the right position
- Lamp off Suppressor in the wrong position or blocked
(procedure see *section 4.1*)

4 Malfunctions – Maintenance

4.1 Malfunctions and their rectification

If difficulties appear with the IC system during analysis, their cause are best investigated in the order **separating column ® pump ® eluent ® IC system**. An overview of possible malfunctions, their causes and remedies can be found in the instruction manuals of both 690 Ion Chromatograph (*section 6.5*) and 732/733 IC System (*section 5.3.2*).

In addition to these general malfunctions the table below contains others which might arise as a result of the operation of the 753 Suppressor Module.

Malfunction	Cause	Rectification
Insufficient or non-existing flow rate	<ul style="list-style-type: none"> • Contact pressure too low • Pump tubing faulty • Blocked connections • Suppressor blocked 	<ul style="list-style-type: none"> • Set contact pressure correctly: Press contact pressure lever 5 on the tubing cartridge down as far as it will go. Press contact pressure lever 5 upwards until the solution just starts to be drawn in. Then press contact pressure lever upwards until it clicks once more to obtain optimal contact pressure. • Exchange pump tubing (see <i>section 4.2.4</i>) • Carry out a step-by-step check of the connections and connectors and if necessary clean or replace them. If the connections to or from the suppressor are blocked then remove the suppressor and clean it (see <i>section 4.2.6</i>). • Exchange suppressor (see <i>section 4.2.7</i>).
Leakage	<ul style="list-style-type: none"> • Leaking tubing connectors 	<ul style="list-style-type: none"> • Tighten or replace the leaking tubing connectors.
Air bubbles in pump circuit	<ul style="list-style-type: none"> • Suction tubing is not immersed • Leaking tubing connectors 	<ul style="list-style-type: none"> • Immerse the suction tubing fully in the regenerating or rinsing solution. • Tighten or replace the leaking tubing connectors.
Reduced phosphate sensitivity and/or strong rise in baseline	<ul style="list-style-type: none"> • Reduction of the suppressor capacity by loading with heavy metals or organic contaminations 	<ul style="list-style-type: none"> • Regenerate suppressor (see <i>section 4.2.5</i>) or exchange suppressor (see <i>section 4.2.7</i>).

<p>Suppressor moves to next position but display lamp 7 no longer lights up</p>	<ul style="list-style-type: none"> • Suppressor dry • Suppressor temporarily in the wrong position • Braking range not correctly adjusted 	<ul style="list-style-type: none"> • Rinse all 3 suppressor units with solution for at least 10 min. • Switch instrument off and then on again. Switch off suppressor remote operation with key 6 <REMOTE> and operate key 8 <STEP>. Check whether display lamp 7 lights up. Repeat this procedure 2-3 times; wait at least 10 s each time before the <STEP> key is operated. If display lamp 7 does not light up each time the position is changed then the braking range must be readjusted (see below). Readjust braking range (see <i>section 4.2.8</i>).
<p>Suppressor is not switched to next position (display lamp 7 no longer lights up)</p>	<ul style="list-style-type: none"> • Connection to suppressor block is interrupted • Suppressor dry • Suppressor temporarily blocked • Suppressor dirty • Mechanical fault in suppressor 	<ul style="list-style-type: none"> • Check cable connection from Suppressor block to 753 Suppressor Module. • Rinse all 3 suppressor units with solution for at least 10 min. • Switch instrument off and then on again. Switch off suppressor remote operation with key 6 <REMOTE> and operate key 8 <STEP>. Check whether display lamp 7 lights up. Repeat this procedure 2-3 times; wait at least 10 s each time before the <STEP> key is operated. If display lamp 7 does not light up each time the position is changed then the braking range must be readjusted (see below). • Clean suppressor (see <i>section 4.2.6</i>). • Exchange suppressor (see <i>section 4.2.7</i>).

4.2 Maintenance and servicing

4.2.1 Care

The 753 Suppressor Module requires proper care and attention. Excessive contamination of the instrument could possibly lead to malfunctions and a shorter service life of the inherently rugged mechanical and electronic parts.

Spilled chemicals and solvents should be wiped up immediately. It is especially important to protect the plug connections at the rear of the instrument (particular the mains plug) against contamination.



Although constructional measures have been designed to virtually eliminate such a situation, should corrosive media penetrate the interior of the instruments the mains plug of the 753 Suppressor Module must be immediately disconnected to prevent extensive damage to the instrument electronics. Inform Metrohm service if your instrument has been damaged in such a way.



The instrument must not be opened by untrained personnel. Please comply with the safety notes in section 1.4.1.

4.2.2 Maintenance by Metrohm service

Maintenance of the 753 Suppressor Module is best done as part of an annual service performed by specialists from the Metrohm company. If work is frequently performed with caustic and corrosive chemicals, it may be necessary to shorten the interval between servicing.

The Metrohm service department is always willing to offer expert advice on the maintenance and servicing of all Metrohm instruments.

4.2.3 Shutdown

If the IC system is shut down for a considerable length of time, the entire IC system (**without** column and suppressor) must be **rinsed free from salt** with methanol/water (1:4) to avoid crystallization of eluent salts with the corresponding subsequent damage. In order to rinse them the separating column and suppressor are disconnected and the injector and detector are directly connected to each other. Rinse with methanol/water (1:4) until the conductivity drops below 10 $\mu\text{S}/\text{cm}$.

All three suppressor units are then rinsed for about 5 min with ultrapure water.

4.2.4 Exchanging the pump tubing

Pump tubings are consumable material with a limited lifetime and should be exchanged at regular intervals (approx. every 2 weeks under continuous use).

The working life of pump tubing depends to a considerable extent on the contact pressure. This is why the contact pressure must be correctly set as described in *section 2.3.2* or *2.4.2* respectively. If the pump is to remain switched off for a lengthy period of time the tubing cartridges should be raised completely by loosening snap-action lever **10** on the right-hand side (the set contact pressure remains unchanged).

As the pump is always operated on the same side the pump tubings 6.1826.050 supplied can be used on both sides. To exchange a pump tubing proceed as follows:

1 Remove old pump tubing

- Press contact pressure lever **5** on the tubing cartridge down as far as it will go.
- Release tubing cartridge **4** from holding clamp **9** by pressing down snap-action lever **10** and remove from mounting pin **12** on the 753 Suppressor Module (see *Fig. 1*).
- Remove old pump tubing.

2 Insert new pump tubing

- Insert the new pump tubing **33** (6.1826.050) in the tubing cartridge as shown in *Fig. 7*. The white-yellow stopper **34** must click into the corresponding holder on the left-hand side of the tubing cartridge.
- Place the tubing cartridge on mounting pin **12** and press down on the right-hand side until snap-action lever **10** clicks into position on holding clamp **9**. Take care that no kinks are formed in the pump tubing.

3 Set contact pressure

- Press contact pressure lever **5** upwards until the solution just starts to be drawn in. Then press contact pressure lever upwards until it clicks once more to obtain optimal contact pressure.

4.2.5 Regeneration of the suppressor

If the suppressor units are exposed to certain heavy metals (e.g. iron) or organic contaminants for longer periods of time then these can no longer be removed completely by the regeneration solution normally used (20 mmol/L H₂SO₄). This diminishes the capacity of the suppressor units which in milder cases results in a reduced sensitivity to phosphates and in severe cases in a strong increase in the baseline. If such capacity problems occur then the suppressor units must be treated as follows:

1 Disconnect suppressor from IC system

- Disconnect suppressor from separating column and detector.

2 Regenerate suppressor

- Rinse all 3 suppressor units one after another for about 10 min with one of the following solutions:

For heavy metal contamination

0.2 mol/L H₂SO₄

For contamination with organic substances

0.2 mol/L H₂SO₄ / acetone ≥ 20%



The 6.1826.050 Pump tubing is made of PVC and must not be used for rinsing with solutions which contain acetone. In such cases a different pump tubing or a different pump must be used for rinsing purposes.

3 Connect suppressor to IC system

- Reconnect suppressor to IC system. If there are still problems with the capacity then the suppressor rotor must be exchanged (see section 4.2.6).

4.2.6 Cleaning the suppressor

Cleaning the suppressor may be necessary in the following cases (see also *section 4.1*):

- Blockage of the suppressor which cannot be remedied (the suppressor can no longer deliver solutions)
- Obstruction of the suppressor which cannot be remedied (the suppressor can no longer be switched to next position)

To clean the connection piece and the rotor proceed as follows (see *Fig. 9*):

1 Disconnect suppressor from IC system

- Disconnect input lead of suppressor from the separating column and output lead to the detector.

2 Dismantle suppressor

- Unscrew nut **35** from suppressor holder **38**.
- Pull out connection piece **36** and suppressor rotor **37** from suppressor holder **38** (the connection piece and the rotor normally stick together).
- Loosen connection piece **36** from suppressor rotor **37**.

3 Clean input and output leads

- Each of the 6 capillary tubings attached to connection piece **36** are connected to the pump one after another and ultrapure water pumped through.
- Check whether solution emerges from connection piece **36**. If one of the input or output leads remains blocked then the connection piece must be replaced (order number 6.2832.010).

4 Clean suppressor rotor

- Clean the sealing surface of suppressor rotor **37** with the aid of a lint-free cloth and ethanol.

5 Insert suppressor rotor

- Insert suppressor rotor **37** in suppressor holder **38** in such a way that the tubing connections at the rear of the rotor fit in the corresponding openings inside the rotor and that one of the three holes in the rotor can be seen from below in one of the openings of the holder.
- If the rotor has been inserted correctly its sealing surface will be about 4 mm inside the holder. If this is not the case then the rotor must be brought into the correct position from below with the aid of a sharp object (e.g. screwdriver).

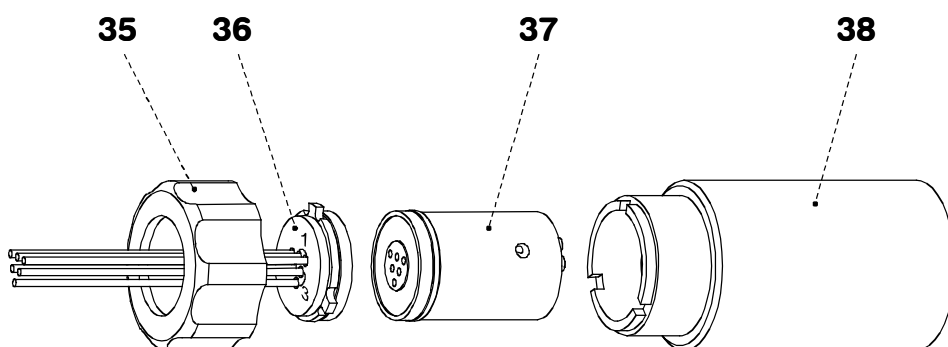


Fig. 9: Assembling the suppressor

35	Screw nut	37	Suppressor rotor (6.2832.000)
36	Connection piece (6.2832.010) with input and output leads	38	Suppressor holder

6 Clean connection piece

- Clean the sealing surface of connection piece **36** with the aid of a lint-free cloth and ethanol.

7 Insert connection piece

- Insert connection piece **36** in suppressor holder **38** in such a way that connection "1" is at the top and that the three lugs on the connection piece fit in the corresponding openings of the holder.
- Screw nut **35** onto the thread of suppressor holder **38** manually (do not use tools).

8 Connect and condition the suppressor

- Reconnect the suppressor to the IC system (see *section 2.3.2 and section 2.4.2*).
- Before switching the suppressor to the next position for the first time rinse all 3 suppressor units with solution for 5 min.

4.2.7 Exchanging the suppressor

Exchanging the suppressor in the suppressor block of the 753 Suppressor Module may be necessary in the following cases (see also *section 4.1*):

- Loss of suppressor capacity which cannot be remedied (reduced phosphate sensitivity and/or strong rise in baseline)
- Blockage of the suppressor which cannot be remedied (the suppressor can no longer deliver solutions)

Both the 6.2832.000 suppressor rotor as well as the 6.2832.010 connection piece with the input and output leads can be exchanged. To exchange these components proceed as follows (see *Fig. 9*):

1 Disconnect suppressor from IC system

- Disconnect all input and output leads of the suppressor from IC system and the pump of the 753 Suppressor Module.

2 Dismantle suppressor

- Unscrew nut **35** from suppressor holder **38**.
- Pull out connection piece **36** and suppressor rotor **37** from suppressor holder **38** (the connection piece and the rotor normally stick together).
- Loosen connection piece **36** from suppressor rotor **37**.

3 Clean suppressor rotor

- Clean the sealing surface of new suppressor rotor **37** (6.2832.000) with the aid of a lint-free cloth and ethanol.

4 Insert suppressor rotor

- Insert new suppressor rotor **37** in suppressor holder **38** in such a way that the tubing connections at the rear of the rotor fit in the corresponding openings inside the rotor and that one of the three holes in the rotor can be seen from below in one of the openings of the holder.
- If the rotor has been inserted correctly its sealing surface will be about 4 mm inside the holder. If this is not the case then the rotor must be brought into the correct position from below with the aid of a sharp object (e.g. screwdriver).

5 Clean connection piece

- Clean the sealing surface of new connection piece **36** (6.2832.010) with the aid of a lint-free cloth and ethanol.

6 Insert connection piece

- Insert new connection piece **36** in suppressor holder **38** in such a way that connection "1" is at the top and that the three lugs on the connection piece fit in the corresponding openings of the holder.
- Screw nut **35** onto the thread of suppressor holder **38** manually (do not use tools).

7 Connect and condition the suppressor

- Reconnect the suppressor to the IC system (see *section 2.3.2 and section 2.4.2*).
- Before switching the suppressor to the next position for the first time rinse all 3 suppressor units with solution for 5 min.

8 Check braking range

- Check the braking range of the suppressor according to *section 4.2.8* and readjust if necessary.

4.2.8 Braking range adjustment

It may be necessary to readjust the braking range of the 753 Suppressor Module in the following cases (see also *section 4.1*):

- Suppressor switches to next position but display lamp **7** no longer lights up
- When the suppressor is exchanged (see *section 4.2.7*)

The braking range is adjusted by means of adjustment screw **18** "Breakpoint Δt " on the rear panel of the 753 Suppressor Module. Proceed as follows:

1 Condition the suppressor

- If the suppressor has been cleaned or exchanged then before switching the suppressor to the next position for the first time all 3 suppressor units must be rinsed with solution for 5 min.

2 Check the position of the suppressor rotor

- Switch the instrument off and then on again. Switch off suppressor remote operation with key **6** <REMOTE> and operate key **8** <STEP>.

- By rotating the suppressor block or with the aid of a mirror check the position of the suppressor rotor according to *Fig. 10*: at least one of the three holes of the suppressor rotor must be partly or completely visible through the opening at the bottom of the suppressor block.
- Repeat the procedure 2-3 times; wait at least 10 s each time before the <STEP> key is operated.
- If the rotor stops in an unacceptable position then the braking range must be readjusted (continue with point **3**).

3 Adjust braking range

- Rotate adjustment screw **18** a little in each direction according to *Fig. 10* so that the rotor position lies in the acceptable range.
- Operate key **8** <STEP>.
- Check the position of the rotor in all of the 3 possible positions according to *Fig. 10*.
- Repeat the adjustment procedure until the position of the rotor lies in the acceptable range in all of the 3 possible positions. Wait at least 10 s each time before operating key **8** <STEP>.

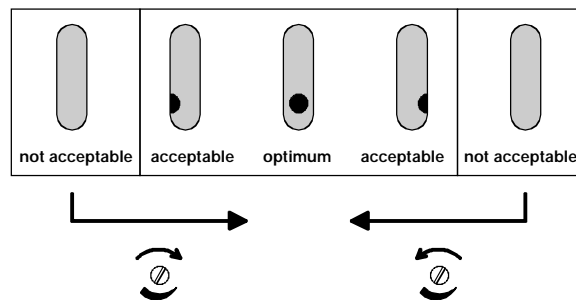


Fig. 10: Adjusting the braking range

5 Appendix

5.1 Technical data

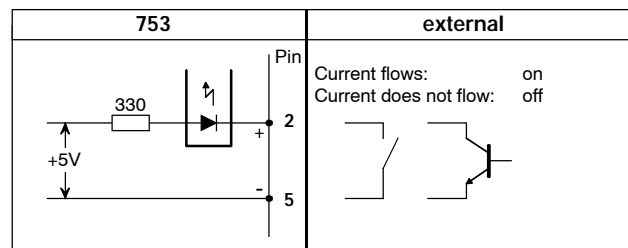
Pump

<i>Pump type</i>	2-channel peristaltic pump with rotational speed of 20/min (50 Hz) 24/min (60 Hz)
<i>Pump capacity</i>	typically 0.5...0.6 mL/min with 6.1826.050 pump tubing
<i>Pressure</i>	max. 4 bar (0.4 MPa)
<i>Pumpable liquids</i>	Clear liquids with no solid contents
<i>Pump tubing material</i>	PVC (Tygon®)

Remote interface for pump

Purpose Remote control of pump (switching on/off)

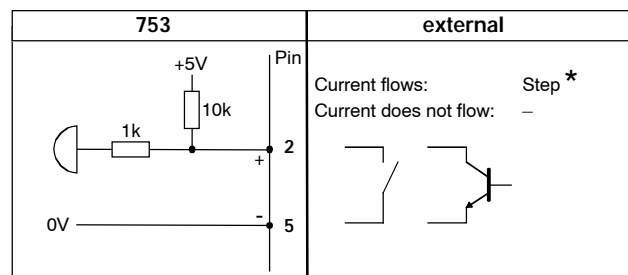
Pin assignment



Remote interface for suppressor

Purpose Remote control of suppressor (rotating)

Pin assignment



* A precondition for triggering a step is that the current flows for at least 10 ms. In order that a new step can be triggered no current must flow for at least 10 ms before.

Mains connection

<i>Mains voltage</i>	115 V: 100...120 V \pm 10 % 230 V: 220...240 V \pm 10 % Switchable with voltage selector in fuse holder (see section 2.2.1)
<i>Mains frequency</i>	50...60 Hz
<i>Power consumption</i>	50 VA
<i>Fuse</i>	5 mm \varnothing , 20 mm length 100...120 V: 0.5 A (slow-blow) 220...240 V: 0.25 A (slow-blow)

Safety specifications

<i>Construction / Testing</i>	According to IEC 1010 / EN 61010 / UL 3101-1, protection class I, degree of protection IP20
<i>Safety directions</i>	The Instructions for Use include information and warnings to which the user must pay attention in order to assure safe operation of the instrument.

Electromagnetic compatibility (EMC)

<i>Emitted interference</i>	Standards met: EN 55011 (class B), EN 55022 (class B), EN 50081-1 01.92
<i>Immunity to interference</i>	Standards met: EN 50082-2, EN 60555-2, IEC801-2, IEC801-3, IEC801-4, IEC801-5, IEC801-6, IEC1000-4-11, NAMUR

Ambient temperature

<i>Nominal operating range</i>	+5...+45°C (at 20...80 % atmospheric humidity)
<i>Storage, transport</i>	-40...+70°C

Housing

<i>Material of cover</i>	Polyurethane rigid foam (PUR) with fire protection for fire class UL94VO, CFC-free
<i>Material of base</i>	Steel, enamelled

Dimensions

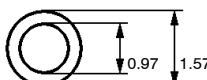
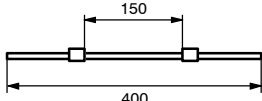
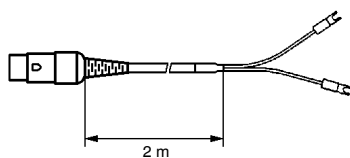
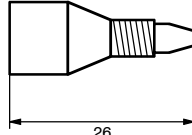
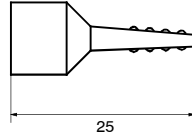
<i>Width</i>	260 mm
<i>Height</i>	129 mm
<i>Depth</i>	366 mm
<i>Weight</i>	6.0 kg (incl. accessories)

5.2 Standard equipment



*Subject to changes!
All dimensions are given in mm.*

The 2.753.0010 Suppressor Module includes the following parts:

Quant.	Order No.	Description								
1	1.753.0100	Suppressor block								
1	6.1803.020	PTFE capillary tubing Length = 5 m 								
2	6.1826.050	Pump tubing made of PVC (Tygon®); with 2 firmly attached white-yellow stoppers; i.d. = 0.57 mm, e.d. = 2.27 mm 								
1	6.2128.090	Connecting cable Connecting cable 753 Suppressor Module – 690 Ion Chromatograph 								
1	6.2122.0X0	Mains cable to customer's specifications: <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"><u>Cable socket</u></td> <td style="width: 50%;"><u>Cable connector</u></td> </tr> <tr> <td>Type IEC 320/C 13</td> <td>Type SEV 12 (CH...) 6.2122.020</td> </tr> <tr> <td>Type IEC 320/C 13</td> <td>Type CEE (7), VII (D...) 6.2122.040</td> </tr> <tr> <td>Type CEE (22), V</td> <td>Type NEMA 5-15 (USA...) 6.2122.070</td> </tr> </table>	<u>Cable socket</u>	<u>Cable connector</u>	Type IEC 320/C 13	Type SEV 12 (CH...) 6.2122.020	Type IEC 320/C 13	Type CEE (7), VII (D...) 6.2122.040	Type CEE (22), V	Type NEMA 5-15 (USA...) 6.2122.070
<u>Cable socket</u>	<u>Cable connector</u>									
Type IEC 320/C 13	Type SEV 12 (CH...) 6.2122.020									
Type IEC 320/C 13	Type CEE (7), VII (D...) 6.2122.040									
Type CEE (22), V	Type NEMA 5-15 (USA...) 6.2122.070									
1	6.2744.010	PEEK compression fitting For the connection of 6.1831.010 PEEK capillaries or 6.2620.020 Steel capillaries, set of 5 pcs 								
1	6.2744.030	PEEK coupling Connection between 6.2744.010 PEEK compression fitting and 6.1826.0X0 pump tubing (also supplied together with 733.0030 IC Separation Center); Set of 4 pcs 								
1	8.753.1003	Instructions for use (English) for 753 Suppressor Module								

5.3 Optional accessories

<i>Order No.</i>	<i>Description</i>
6.2143.210	Connecting cable Connecting cable 753 Suppressor Module – 732 IC Detector
6.2832.000	Suppressor rotor
6.2832.010	Connection piece to suppressor rotor with input and output leads

5.4 Warranty and conformity

5.4.1 Warranty

The warranty on our products is limited to defects that are traceable to material, construction or manufacturing error which occur within 12 months from the day of delivery. In such cases the defects will be rectified in our workshops free of charge. Transport costs are to be paid by the customer.

For day and night operation the warranty is limited to 6 months.

Glass breakage in the case of electrodes or other parts is not covered by the warranty. Checks which we are asked to carry out during the warranty period for reasons other than material or manufacturing faults will be invoiced. For parts manufactured by third parties, insofar as these constitute an appreciable part of our instrument, the warranty stipulations of the manufacturer in question apply.

With the regard to the guarantee of accuracy, the technical specifications in the instruction manual are authoritative.

With regard to defects in material, construction or design as well as the absence of guaranteed features, the purchaser has no rights or claims except those mentioned above.

If damage of the packaging is evident on receipt of a consignment or if the goods show signs of transport damage after unpacking, the carrier must be informed immediately and a written damage report demanded. Lack of an official damage report releases Metrohm from any liability to pay compensation.

If any instruments and parts have to be returned, the original packaging should be used if at all possible. This applies above all to instruments, electrodes, burette cylinders and PTFE pistons. Before embedding them in wood shavings or similar material, the parts must be packed in a dustproof package (for instruments the use of a plastic bag is imperative). If open assemblies are enclosed in the scope of delivery that are sensitive to electromagnetic voltages (e.g. data interfaces etc.) these must be returned in the associated original protective packaging (e.g. conductive protective bag). (Exception: assemblies with built-in voltage source belong in a non-conductive protective packaging). For damage which arises as a result of non-compliance with these instructions, no warranty responsibility whatsoever will be accepted by Metrohm.

5.4.2 EU Declaration of conformity



EU Declaration of Conformity

The METROHM AG company, Herisau, Switzerland hereby certifies, that the instrument:

753 Suppressor Module

meets the requirements of EC Directives 89/336/EWG and 73/23/EWG.

Source of the specifications:

EN 50081-1	Electromagnetic compatibility, basic specification Emitted Interference
EN 50082-2	Electromagnetic compatibility, basic specification Interference Immunity
EN 61010	Safety requirements for electrical laboratory measurement and control equipment

Description of the instrument:

Metrohm Suppressor Module for external operation including two-channel peristaltic pump

Herisau, November 8, 1996



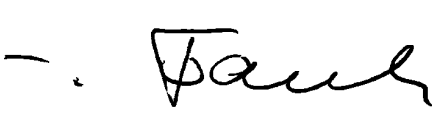

Dr. J. Frank

Ch. Buchmann

Development Manager

Production and
Quality Assurance Manager

5.4.3 Certificate of conformity and system validation

Certificate of Conformity and System Validation	
<p>This is to certify the conformity to the standard specifications for electrical appliances and accessories, as well as to the standard specifications for security and to system validation issued by the manufacturing company.</p>	
Name of commodity:	753 Suppressor Module
Name of manufacturer:	Metrohm Ltd., Herisau, Switzerland
Principal technical information:	Voltages: 100...120, 220...240 V Frequency: 50...60 Hz
<p>This Metrohm instrument has been built and has undergone final type testing according to the standards:</p> <p style="margin-left: 40px;">IEC801-2/IEC1000-4-2 (level 4), IEC801-3 (level 3), IEC801-4/IEC1000-4-4 (level 4), IEC 801-5/IEC1000-4-5 (level 2/3), IEC801-6/IEC1000-4-6 (level 3), IEC1000-4-11, EN55011 (class B), EN55022 (class B), EN50081-1 01.92, EN50082-2 03.95, EN60555-2 — <i>Electromagnetic compatibility</i></p> <p style="margin-left: 40px;">IEC1010, EN61010, UL3101-1 — <i>Security specifications</i></p> <p>It has also been certified by the Swiss Electrotechnical Association (SEV), which is member of the International Certification Body (CB/IEC).</p> <p>The technical specifications are documented in the instruction manual.</p>	
<p>Metrohm Ltd. is holder of the SQS-certificate of the quality system ISO 9001 for quality assurance in design/development, production, installation and servicing.</p>	
<p>Herisau, November 8, 1996</p> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  <p>Dr. J. Frank Development Manager</p> </div> <div style="text-align: center;">  <p>Ch. Buchmann Production and Quality Assurance Manager</p> </div> </div>	

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