Metrohm
ion analysis
CH-9101 Herisau/Switzerland
Phone +41 71 353 85 85
Fax +41 71 353 89 01
E-Mail info@metrohm.ch
http://www.metrohm.com

813 Compact Autosampler

Program version 5.813.0010

Instructions for use

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D. Möckli
Teachware
Metrohm Ltd.
Oberdorfstr. 68
CH-9100 Herisau

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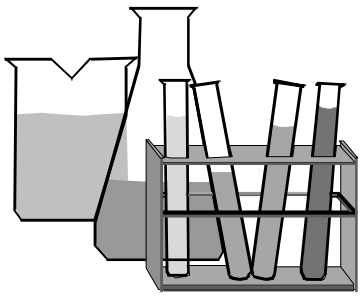


1 Introduction

1.1 Instrument description

The **813 Compact Autosampler** can be used for automating different tasks, e.g. ion chromatographic determinations with the Metrohm IC system instruments or voltammetric determinations with the Metrohm 746 Trace Analyzer or 757 VA Computrace . The sample rack provided may hold up to 36 vials of 2.5 or 11 mL volume respectively. Sample tubes made of polypropylene are standard. To protect the samples from external contamination, the tubes can be hermetically sealed.

Sample introduction from the 813 Compact Autosampler is achieved by means of its integrated peristaltic pump. The sample is conveyed by the pump through the capillary into e. g. the sample loop of the injector located within an ion chromatograph. A PEEK needle for sealed or a PEEK tube for open sample tubes can be used alternatively.

Preprogrammed methods for the most common modes of operation allow to use the 813 Compact Autosampler directly, without programming effort.

1.2 Parts and controls

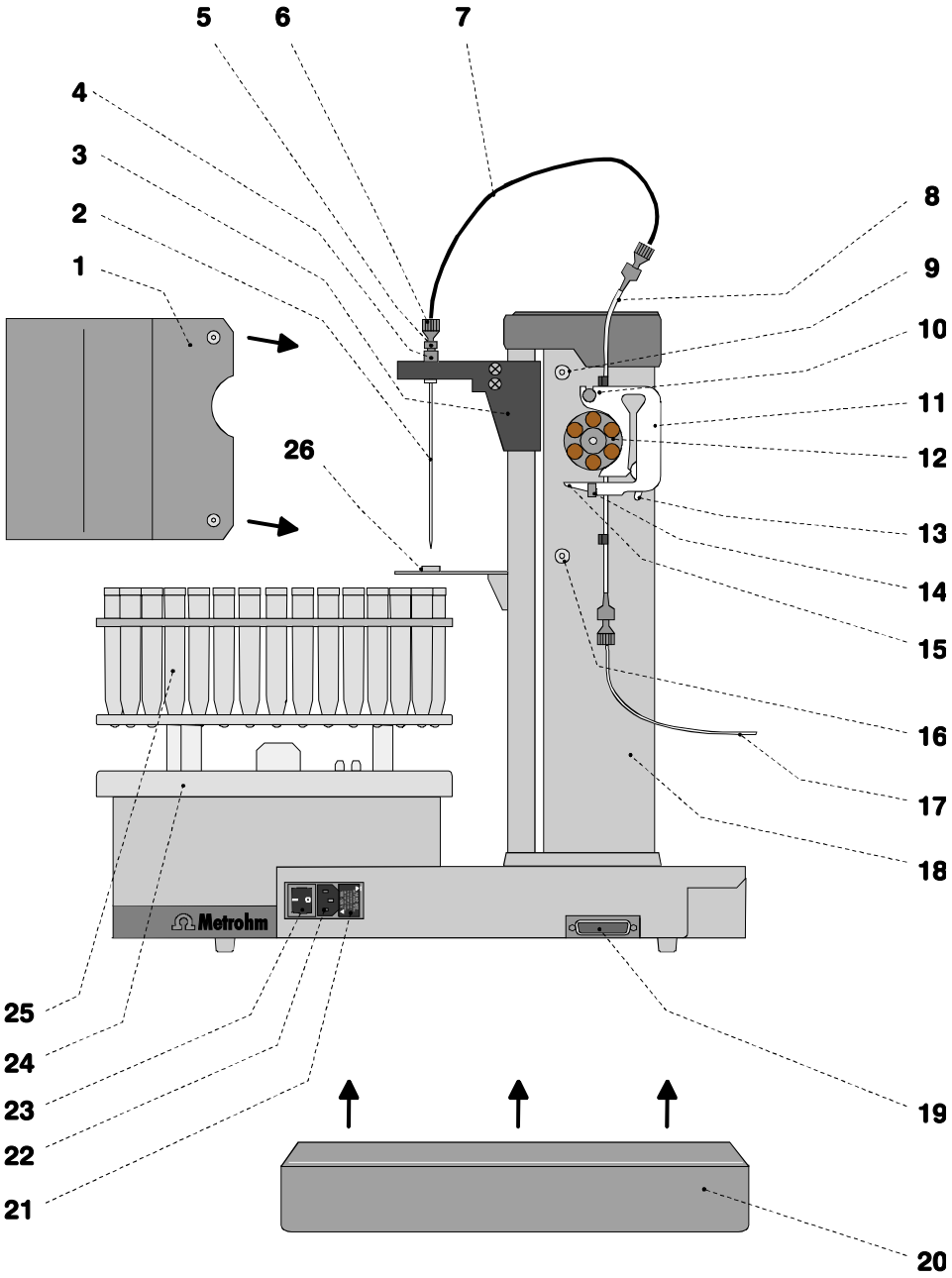


Fig. 1 Side view

Safety note:

Never operate the instrument without splash protection and plug cover being mounted.
The plug cover prevents any contamination of the connectors, caused by spilled solvents or chemicals.

1	**Splash protection 6.2751.040** Must be installed always in operation!	*14*	**Holding clamp** For locking the tubing cartridge into place
2	**Needle** PEEK needle 6.1835.020 or PEEK tube 6.1835.010 or 6.1835.030	*15*	**Snap-action lever** For releasing the tubing cartridge
3	**Lift**	*16*	**Screw thread for splash protection**
4	**Steel holder 4.766.4330** attached (part of 6.2833.000 Needle holder)	*17*	**PEEK capillary 6.1831.060 or 6.1822.410** (1 m or 1.2 m) For conveying the sample to e.g. an injection valve
5	**PEEK compression fitting 4.766.4320** for connection of PEEK capillary ***7*** (part of 6.2833.000 Needle holder)	*18*	**Tower**
6	**PEEK compression fitting 6.2744.010**	*19*	**Remote connection**
7	**PEEK capillary 6.1831.050** (40 cm) connection needle – pump tubing	*20*	**Plug cover 6.2752.010**
8	**Pump tubing 6.1826.040** For conveying the sample	*21*	**Fuse holder** Changing the fuses, see *section 2.2.2*
9	**Screw thread for splash protection**	*22*	**Mains connection plug** Mains connection, see *section 2.2.3*
10	**Mounting pin** For attaching the tubing cartridge	*23*	**Mains switch** For switching the instrument on/off: **I** = ON **0** = OFF
11	**Tubing cartridge 6.2755.000** For 6.1826.0X0 pump tubing 6.1826.0X0	*24*	**Sample rack 6.2041.7500**
12	**Pump drive** Roller head with contact rollers	*25*	**PP sample tube 6.2743.050** (can be sealed with 6.2743.060 PE caps)
13	**Contact pressure lever** For adjusting the contact pressure	*26*	**Needle guide**

1.3 Rear view

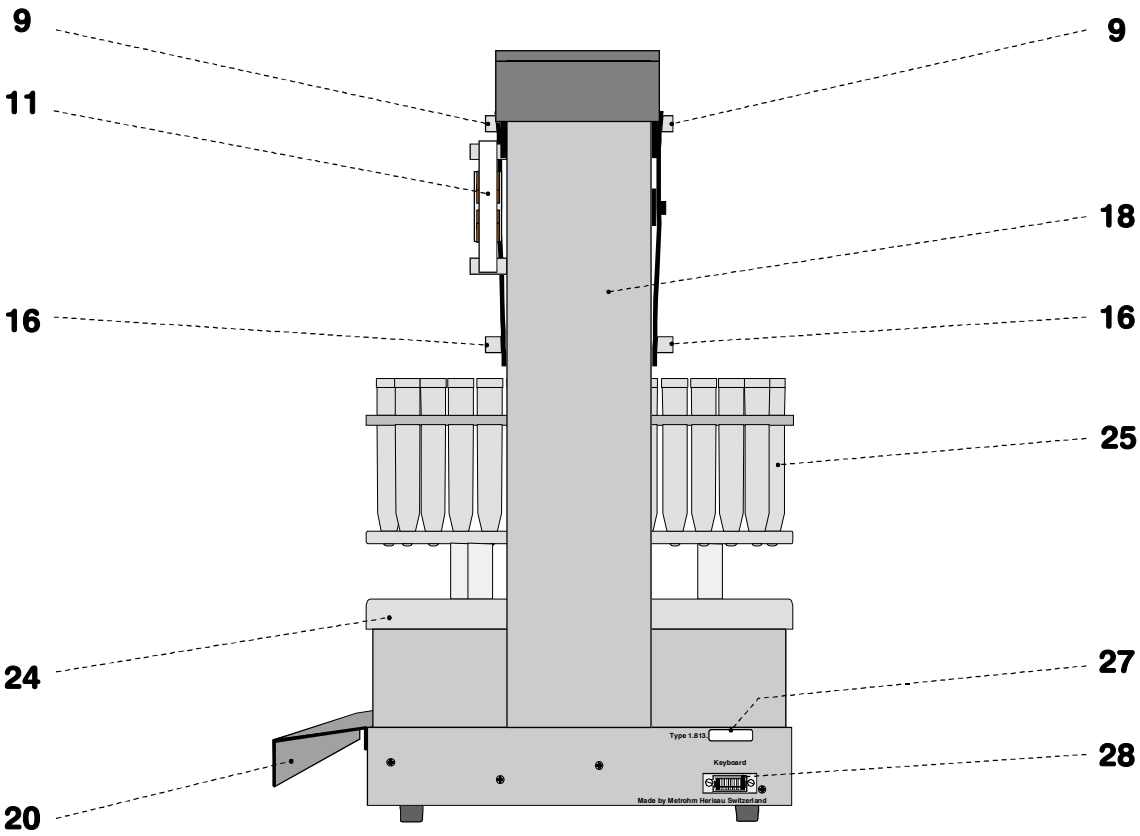


Fig. 2 Rear view

9	**Mounting screws for splash protection**	***24***	**Sample rack 6.2041.750**
11	**Tubing cartridge 6.2755.000** For 6.1826.0X0 pump tubing	***25***	**PP sample tubes 6.2743.050** (can be sealed with 6.2743.060 PE caps)
16	**Mounting screws for splash protection**	***27***	**Serial number**
18	**Tower**	***28***	**Keyboard connection**
20	**Plug cover 6.2752.010**		

1.4 The keyboard

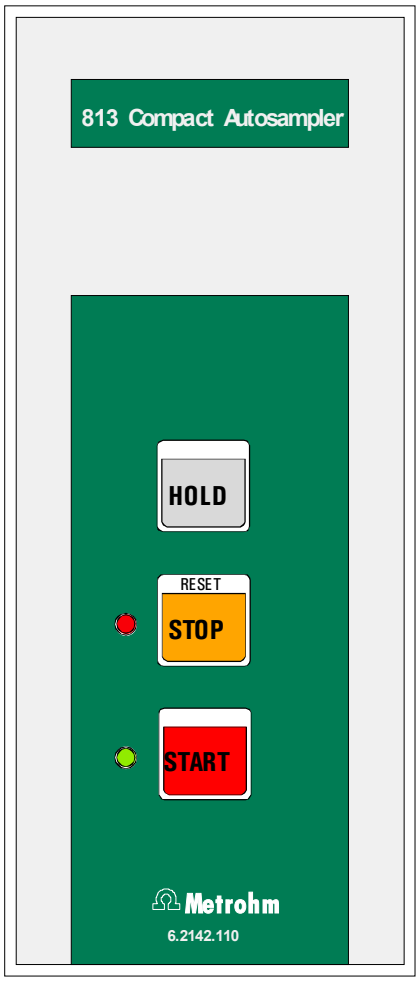


Fig. 3 Keyboard

- The <START> key starts a sample series or continues an interrupted series.

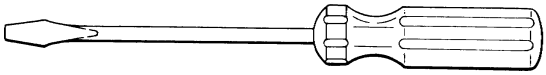
- The <STOP> key terminates a sample series or resets (if pressed twice) the 813 Compact Autosampler (RESET).

- The <HOLD> key interrupts the course of a sample series and establishes the 'HOLD' state. The green LED blinks. With the <START> key the interrupted sample series can be continued.

- The green LED indicates the status of the Autosampler.
  - The LED is lit in the 'ready' state.
  - It blinks steady during the course of a method.
  - It blinks in fast frequency when a series is interrupted ('HOLD' state).

- The red LED indicates error states or parameter settings.
  - If an error occured the type of error is indicated by the number of blinks, see *Appendix, Error messages*.

2 Installation



2.1 Setting up the instrument

2.1.1 Packaging

The 813 Compact Autosampler 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 Delivery check

After receipt, immediately check whether the shipment is complete and undamaged (compare with delivery note and list of accessories in *section 4.6*). In the case of transport damage, see instructions in *section 4.5.1* "Warranty".

2.1.3 Location

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

*Do not operate the 813 Compact Autosampler without splash protection **1** and plug cover **20** being installed!*

Take precautions to ensure that any leaks from pump tubings or connections cannot cause more damage.

Take precautions to ensure that any leaks from pump tubings or connections cannot cause more damage.

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 813 Compact Autosampler for the first time, check that the mains voltage set on the instrument (see *Fig. 4*) matches the local mains voltage. If not, reset the mains voltage on the instrument as follows:

1 Disconnect mains cable

Disconnect mains cable from mains connection plug ***22*** of the 813 Compact Autosampler.

2 Remove fuse holder

Using a screwdriver, loosen fuse holder ***21*** beside the mains connection ***22*** and take out completely.

3 Check fuse

Carefully take the fuse installed for the desired mains voltage out of fuse holder ***21*** 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):

100…120 V 0.5 A (slow-blow)
Metrohm-Nr. U.600.0013

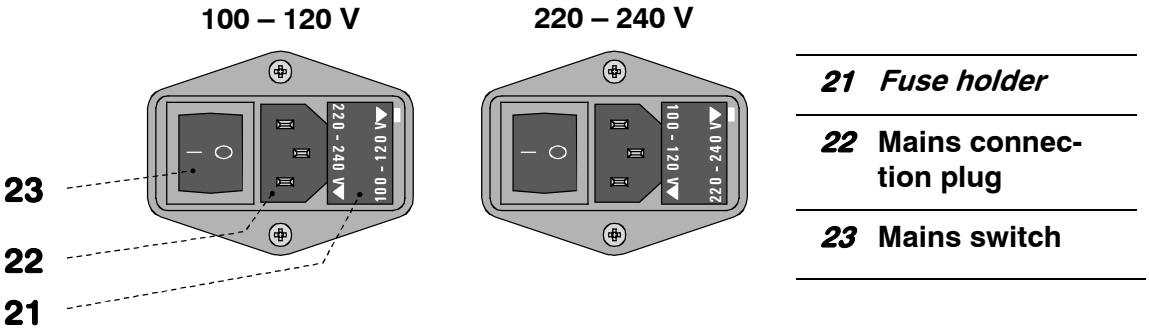
220…240 V 0.25 A (slow-blow)
Metrohm-Nr. U.600.0010

4 Insert fuse

Change fuse if necessary and reinsert in fuse holder ***21***.

5 Install fuse holder

Depending on the desired mains voltage, insert fuse holder ***21*** in the 813 Compact Autosampler so that the corresponding mains voltage range can be read normally and the adjacent white arrow points to the white bar imprinted on the right side of the fuse holder (see *Fig. 4*).



21	***Fuse holder***
22	**Mains connection plug**
23	**Mains switch**

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 ***21*** of the 813 Compact Autosampler 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 2.2.2*.

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 1).

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 ***22*** of the 813 Compact Autosampler (see *Fig. 4*).

2.2.4 Switching the instrument on/off

The 813 Compact Autosampler is switched on and off using the mains switch ***23***.

2.3 Attaching the accessories

For attaching the accessories at the 813 Compact Autosampler, proceed in the order described below.

2.3.1 Connecting the keyboard

1 Connecting the keyboard

Connect the 6.2142.110 keyboard to the keyboard connection ***28*** "Keyboard". For disconnection, press the plug together slightly on both sides.

2 Switch on the instrument

Switch on the 813 Compact Autosampler with mains switch ***23***. The instrument is initialized and the lift is raised completely. The green LED lights up.

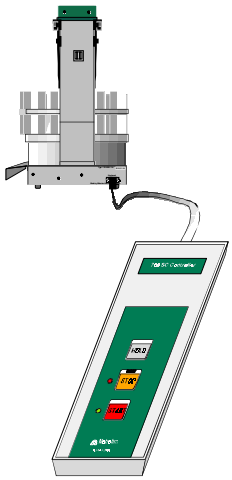


Fig. 5 Keyboard connection

2.3.2 Installing the plug cover

To prevent any contamination of the mains and remote connection by spilled solvents or chemicals, the 6.2752.010 plug cover must always be installed when operating the 813 Compact Autosampler!

Install the plug cover ***20*** in the corresponding guide groove above mains connection plug ***22*** and remote connection ***19*** (see *Fig. 1* and *Fig. 2*).

2.3.3 Installing the needle

1 Remove PEEK compression fitting 5

Remove PEEK compression fitting ***5*** screwed onto the needle holder ***4***.

2 Insert needle

- Needle ***2*** (6.1835.010 PEEK needle or 6.1835.020 or 6.1835.010 PEEK tube) is inserted a short distance into the opening of steel holder ***4***.
- Push PEEK round seal ***29*** over needle ***2*** from above. The smaller end of the seal must face upwards.

3 Fix needle

- Screw PEEK compression fitting ***5*** into steel holder ***4*** while pressing needle ***2*** gently upwards from below.
- Tighten compression fitting ***5*** in steel holder ***4*** by hand (never use tools!).

2	***PEEK needle (6.1835.010) or PEEK tube (6.1835.020 or 6.1835.030)***
4	***Steel holder (4.766.4330)*** (part of 6.2833.000 Needle holder)
5	***PEEK compression fitting (4.766.4320)*** (part of 6.2833.000 Needle holder)
6	***PEEK compression fitting (6.2744.010)***
7	***PEEK capillary (6.1831.050)***
29	***PEEK ferrule***

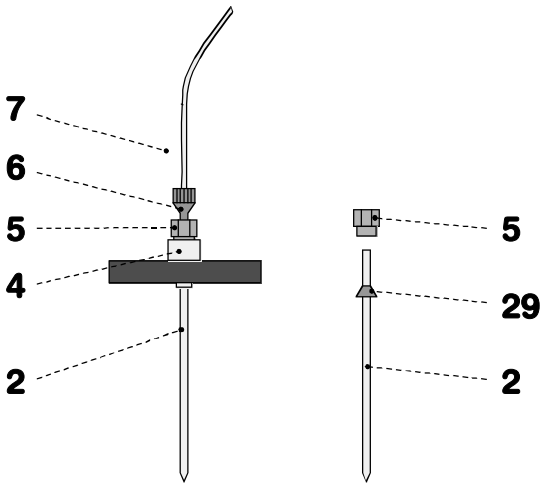


Fig. 6 Needle installation

If you are using the 6.1835.020 or 6.1835.030 PEEK tube as needle, the sample tubes must ***not be sealed with caps*** *because they cannot be pierced by the PEEK tube and this could damage the tube!*

2.3.4 Installing the splash protection

To avoid any danger of injury by the needle, the 6.2751.070 splash protection must always be installed when operating the 813 Compact Autosampler!

1 Remove holding screws

Remove the holding screws ***16*** and the washer mounted on the screw threads ***9*** at tower ***18*** using the 6.2621.100 Allen key.

2 Remove protective film from splash protection

Remove the plastic film glued on both sides of the splash protection ***1***.

3 Install splash protection

Attach splash protection ***1*** onto the screw threads ***9*** and ***16*** at the tower ***18*** and fix it with the holding screws ***9*** and the washer using the 6.2621.100 Allen key.

1 Splash protection 6.2751.040

9 Holding screw

16 Holding screw

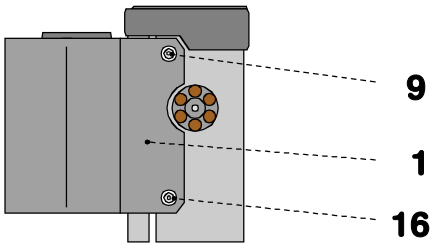


Fig. 7 Installing the splash protection

2.3.5 Placing the sample rack

1 Place sample rack

Place sample rack ***24*** on the turntable of the 813 Compact Autosampler acc. to *Fig. 8*.

2 Initialize rack

Press <RESET> to move the rack to the home position, in which the magnetic code can be read (coding magnet **30**).

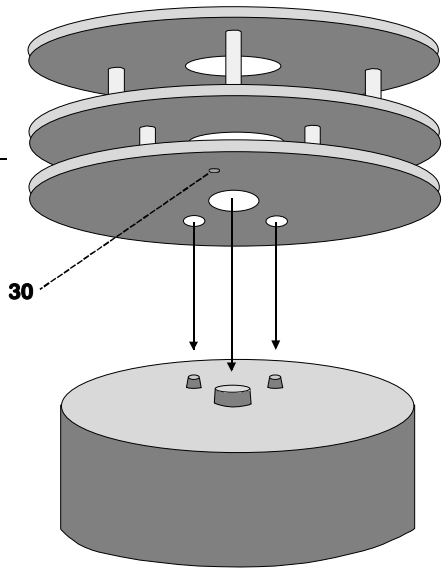


Fig. 8 Sample rack placing

2.3.6 Adjusting the sample rack

If a new sample rack is placed on the 813 Compact Autosampler for the first time, it must be adjusted. Make sure you have mounted a steel needle or a PEEK needle before. Proceed as follows:

1 Place sample rack

Place empty sample rack ***24*** on the turntable of the 813 Compact Autosampler and switch off the instrument.

2 Switch on the instrument

Keep the <HOLD> key pressed and simultaneously press the mains switch on the right hand side of the 813 Compact Autosampler. The instrument is initialized and the needle is placed above rack position 1. Press the <START> key. The green LED is now blinking twice.

3 Check needle position

- Press <HOLD> until the needle ***2*** is about 1 cm above the upper level of the sample rack ***24***.
- Check needle position: If the needle **2** cannot be lowered unhindered through the upper hole of the rack position 1, continue directly with point **4**.
- Press <HOLD> once and continue lowering the needle by pressing <HOLD> again until the needle ***2*** stops.
- Check needle position: If the needle ***2*** points to the middle of lower hole of the rack position 1, the sample rack must not be adjusted (continue directly with point **5**).

4 Adjusting the sample rack

- Loosen the four adjusting screws ***33*** on the lower level of the sample rack using the 6.2621.100 Allen key .
- Carefully turn the two upper levels of the sample rack ***27*** by hand until the lowered needle ***2*** is exactly in the middle of the lower hole at the rack position 1.
- Tighten the adjusting screws ***33***.

5 Move to rest position

Press <STOP> twice to move the sample rack to the initial position.

2.3.7 Tubing connections

Pump tubings are consumable material with a lifetime which depends on the contact pressure (see section 4.4 Maintenance and servicing). This is why the tubing cartridges should be raised completely by loosening snap-action lever **15** *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).*

The 6.1826.0X0 pump tubing is made of PVC and must not be used for rinsing with solutions which contain acetone. In such cases, rinse with different pump tubing or a different pump.

For transferring the sample from the 813 Compact Autosampler to an injection valve the following tubing connections must be made:

1 Install pump tubing

- Release tubing cartridge ***11*** from holding clamp ***14*** by pressing down snap-action lever ***15*** and remove it from mounting pin ***10*** on the 813 Compact Autosampler (see *Fig. 9*).
- Press contact pressure lever ***13*** on the tubing cartridge down as far as it will go.
- Insert pump tubing ***8*** in the tubing cartridge ***11*** as shown in *Fig. 9*. The black stopper ***32*** must click into the corresponding holder on the left-hand side of the tubing cartridge.
- Place the tubing cartridge ***11*** on mounting pin ***10*** and press down on the right-hand side until snap-action lever ***15*** clicks into position on holding clamp ***14***. Take care that no kinks are formed in the pump tubing.

2 Connection needle – pump tubing

- Mount a PEEK compression fitting ***6*** on both ends of the PEEK capillary ***7***.
- Screw the PEEK capillary ***7*** with the PEEK compression fitting ***6*** on to the PEEK compression fitting ***5*** already mounted on needle holder ***4*** (see *Fig. 9*).
- Screw a coupling ***31*** on to the PEEK compression fitting at the other end of PEEK capillary ***7***.
- Push coupling ***31*** on to the inlet end of the pump tubing ***8*** (see *Fig. 9*).

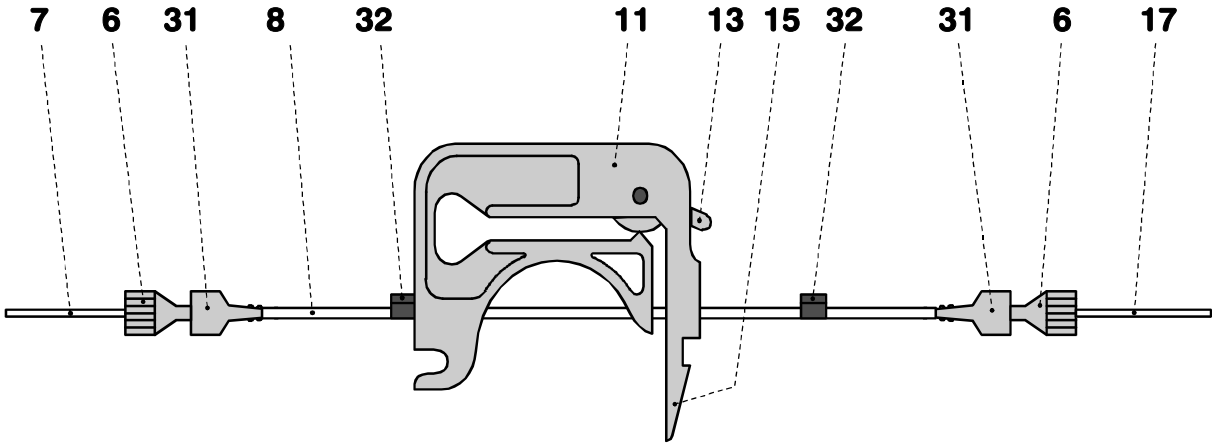


Fig. 9 Installing the pump tubing

6	**PEEK compression fitting 6.2744.010**	***15***	**Snap-action lever**
7	**PEEK capillary 6.1831.050**	***17***	**PEEK capillary 6.1831.060 or 6.1822.410**
8	**Pump tubing 6.1826.040**	***31***	**Coupling 6.2744.030**
11	**Tubing cartridge 6.2755.000**	***32***	**Stopper (black)**
13	**Contact pressure lever**		

2.3.8 Tubing connection to Metrohm 761 / 790 IC–Systems

3 Connection pump tubing – injection valve

- Use a 6.2744.010 PEEK compression fitting and a 6.2744.030 coupling to tighten the 6.1831.060 PEEK capillary ***17*** to the pump tubing ***8***.
- Loosen the screw thread of the outer connector of the suction tubing inside the Ion chromatograph (see the Ion chromatograph's user manual).
- Replace the suction tubing of the Ion chromatograph with PEEK capillary ***17***. Pass it through the outer connector of the front side of the housing.
- Use a 6.2744.010 PEEK compression fitting to tighten the capillary to the connector "1" of the injection valve.

4 Tubing connection injection valve – waste

- Remove the coupling and the 6.2744.010 compression fitting from syringe tubing.
- Lead the free end of the syringe tubing to the waste container and fix in place.

2.3.9 Tubing connection to a Metrohm 747 VA Stand

3 Connection Pumpschlauch – VA Stand 747

- Use a 6.2744.010 PEEK compression fitting and a 6.2744.030 coupling to tighten the 6.1831.060 PEEK capillary ***17*** to the pump tubing ***8***.

To keep the dead volume as small as possible shorten the pump tubing to a suitable length.

4 Measuring head of the 747 VA Standes

- Insert the other end of the PEEK capillary ***17*** into a threaded opening of the Measuring head of the VA Stand and fix it with a 4.420.2580 fitting screw.

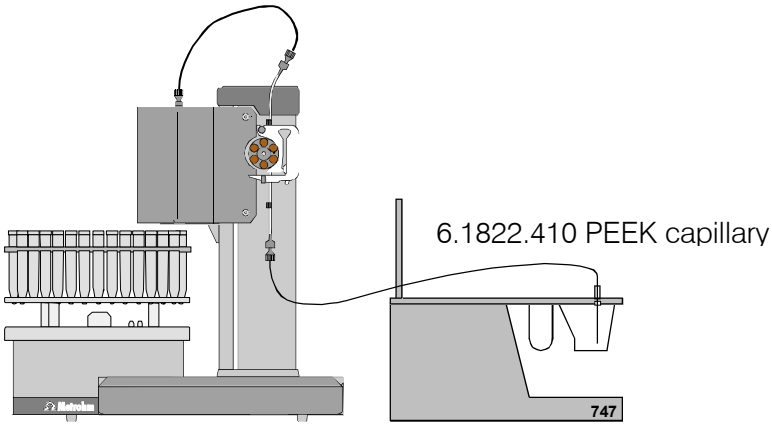


Fig. 10 Connection of a 747 VA Stand

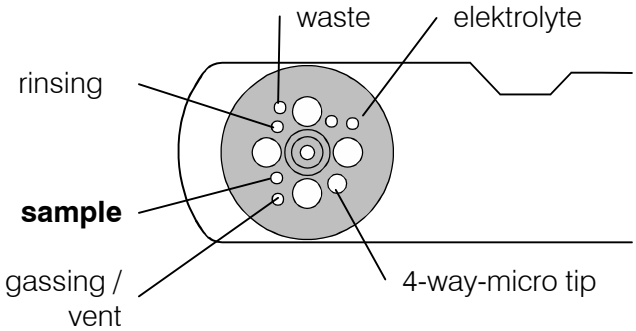


Fig. 11 Measuring head of the747 VA Stand

2.3.10 Tubing connection to a Metrohm Computrace 757

Install tubing connections 813 Compact Autosampler – 757 VA Computrace as shown above for the 747 VA Stand. See the 757 VA Computrace user manual for more details.

2.4 Instrument connections

2.4.1 Remote interface

External devices can be connected to the 25 pin remote connection (see *Fig. 1*). The remote line Input 2 (pin 22, see section 4.3 Technical description) allows the 813 Compact Autosampler to get synchronized with an other instrument.

Connecting instruments to the 813 Compact Autosampler requires Metrohm cables. Otherwise a safe signal transmission may not be guaranteed.

Before an external device is connected to remote connection ***22*** *the 813 Compact Autosampler must always be switched off using mains switch* ***26****!*

2.4.2 Interconnection with Metrohm IC systems

The 813 Compact Autosampler is connected to a Metrohm IC system (761 Compact IC or 790 Personal IC) using the 25 pin 6.2141.130 Remote cable.

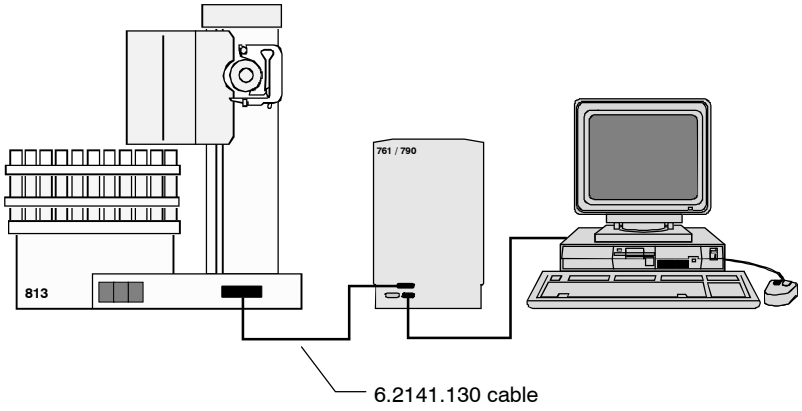


Fig. 12 Interconnection with 761 or 790 IC System

The interconnection of a 813 Compact Autosampler with a modular Metrohm IC System (IC Detector 732, IC Separation Center 733 …) can be done in different ways. Depending on the individual instrument combinations you need a 6.2141.130 or 6.2125.090 Remote cable to connect the 813 Compact Autosampler to a 732 IC Detector. A 6.2125.120 Remote adapter may be required as well. See the user manual of your IC System or contact your Metrohm distributor for more details.

Example for the interconnection of a modular Metrohm IC System:

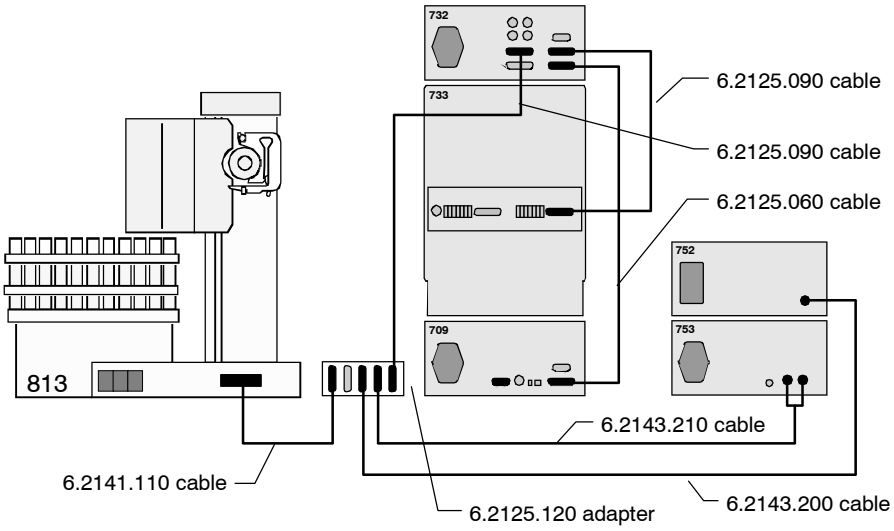


Fig. 13 Interconnection with a modular Metrohm IC System

2.4.3 Interconnection with a Metrohm 746 VA Trace Analyzer

The 813 Compact Autosampler is connected to a Metrohm 746 VA Trace Analyzer with 747 VA Stand using the 25 pin 6.2141.020 Remote cable. Connect the Remote cable to the 'Control lines' socket of the Trace analyzer.

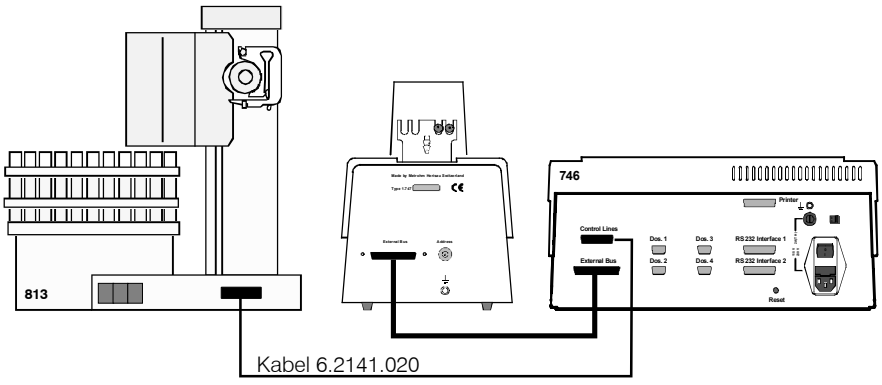


Fig. 14 Interconnection with a Metrohm 746 VA Trace Analyzer

2.4.4 Interconnection with a Metrohm 757 VA Computrace

You need a 6.2141.150 Remote cable to interconnect a 813 Compact Autosampler with a Metrohm VA Computrace 757, see below.

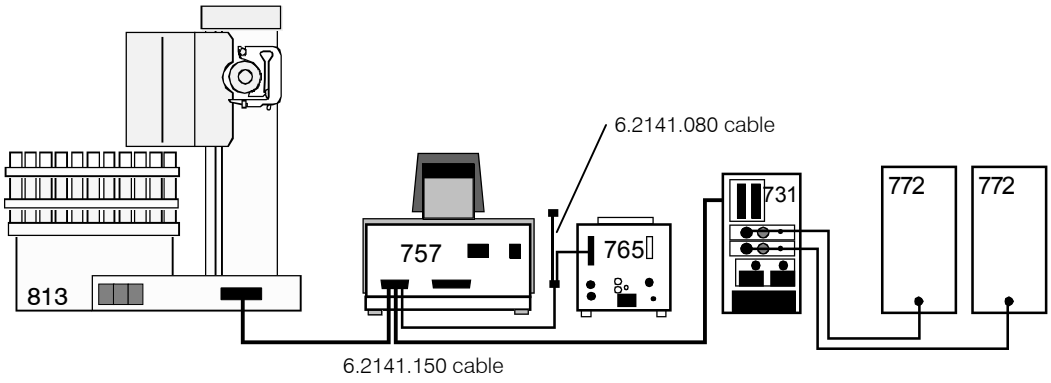


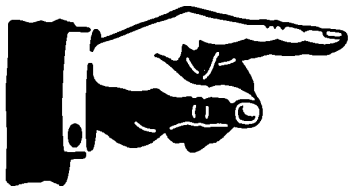
Fig. 15 Interconnection with 757 VA Computrace

2.4.5 Interconnection with other instruments

The Metrohm 813 Compact Autosampler can be connected to other Metrohm instruments or instruments of other equipment manufacturers. It is strongly recommended to use a parallel Metrohm 25-pin Remote cable (6.2141.130 or 6.2141.020) for the interconnection to function properly. The parallel interface of the other instruments has to fulfill the electrical requirements of the Metrohm Remote interface, see *4.3 Technical specifications*.

The method sequences of the Metrohm 813 Compact Autosampler require trigger signals (pulses) via the Remote connection. A trigger signal will be accepted, whenever a negative slope (TTL voltage) or a negative pulse (min. duration 200 ms) on Remote input line 2 (**pin 22**) is recognized, see section *4.3 Technical specifications.*

3 Operation



3.1 Keyboard functions

The 813 Compact Autosampler provides three keys and two LEDs, which may offer different functions depending on the current instrument status.

After switching on the instrument the **readyness** of the 813 Compact Autosampler is displayed by lighting up of the green LED.

Function of the keys

Starts processing of a sample series.

Stops processing of a sample series or initializes the 813 Compact Autosampler (by pressing twice).

Interrupts processing of a sample series, green LED blinks. An interrupted process can be continued with <START>.

If using different proceedings (single injections, double or triple injections), you have to select the appropriate ***method before starting a sample series****.*

Depending on the size of the sample tubes and the desired lift height for the suction of the sample solution the **work position** *for the needle has to be set* ***before starting a sample series****.*

Read the following pages to learn how to configure the 813 Compact Autosampler.

3.2 Configuration

To select a method or to define the work position switch on the 813 Compact Autosampler while holding down the <HOLD> key. The green LED blinks once a second while you can enter the desired settings.

Keyboard functions for configuration:

(after **Power on** while <HOLD> depressed, green **LED blinks**)

Accepts the setting of a value and moves on to the next value.

Selection of method or manual lift movement for the definition of the work position.

Cancels a setting or closes the configuration mode after a settings is accepted with <START>.

Four different **Autosampler methods** are available. They apply to the following tasks:

- ➲ *Single injection with air gap in after each determination, the needle will be drawn out of the sample.*
- ➲ *Single injection without air gap, the needle rests in the sample during the determination.*
- ➲ *Double injection of each sample, no air gap, the needle remains in the sample during the determination.*
- ➲ *Triple injection of each sample, no air gap, the needle remains in the sample during the determination.*

Before running the 813 Compact Autosampler for the first time, the **work position** of the lift has to be set correctly. The work position defines the position of the suction needle while aspirating the sample. It depends mainly from the size of the sample tubes.

For setting the work position place a filled sample tube on the sample rack of the Autosampler on rack position 1.

The needle should remain dipped in the sample solution during the aspiration interval or reach the bottom of the sample vial, depending on the application.

Press <START> to accept a setting. To cancel a setting press <STOP>. Press <STOP> twice to abort the configuration procedure.

The configuration procedure

Key	LEDs	Explanation
HOLD + "Power ON"	green 1*	In order to start the configuration procedure the <HOLD> key must be pressed while the Autosampler is switched on. The green LED lights up once to show that the configuration procedure is active. The **method** can now be selected.
HOLD	red 1-4* green 1*	When the <HOLD> key is pressed the red LED blinks once for the first method. Each time <HOLD> is pressed again the next method is selected up to method 4, then method 1 again..
START	green 2*	<START> accepts the setting. The green LED blinks twice. The **working position** of the lift can now be set.
HOLD	red blinks green 2*	When the <HOLD> key is pressed the lift can be moved manually. Each further time the <HOLD> key is pressed the direction in which the lift moves is altered. In this way the working position can be set accurately.
START	blinks	<START> accepts the setting. The working position is stored. The configuration procedure is now complete. It can be restarted by pressing <HOLD> in order to select the method.
RESET STOP	lights up	The configuration procedure is terminated with <STOP>. When the green LED is illuminated the 813 Compact Autosampler is in the basic state and is ready to process a series of samples.

See next page for a figure of the whole configuration process.

3.2.1 Course of configuration

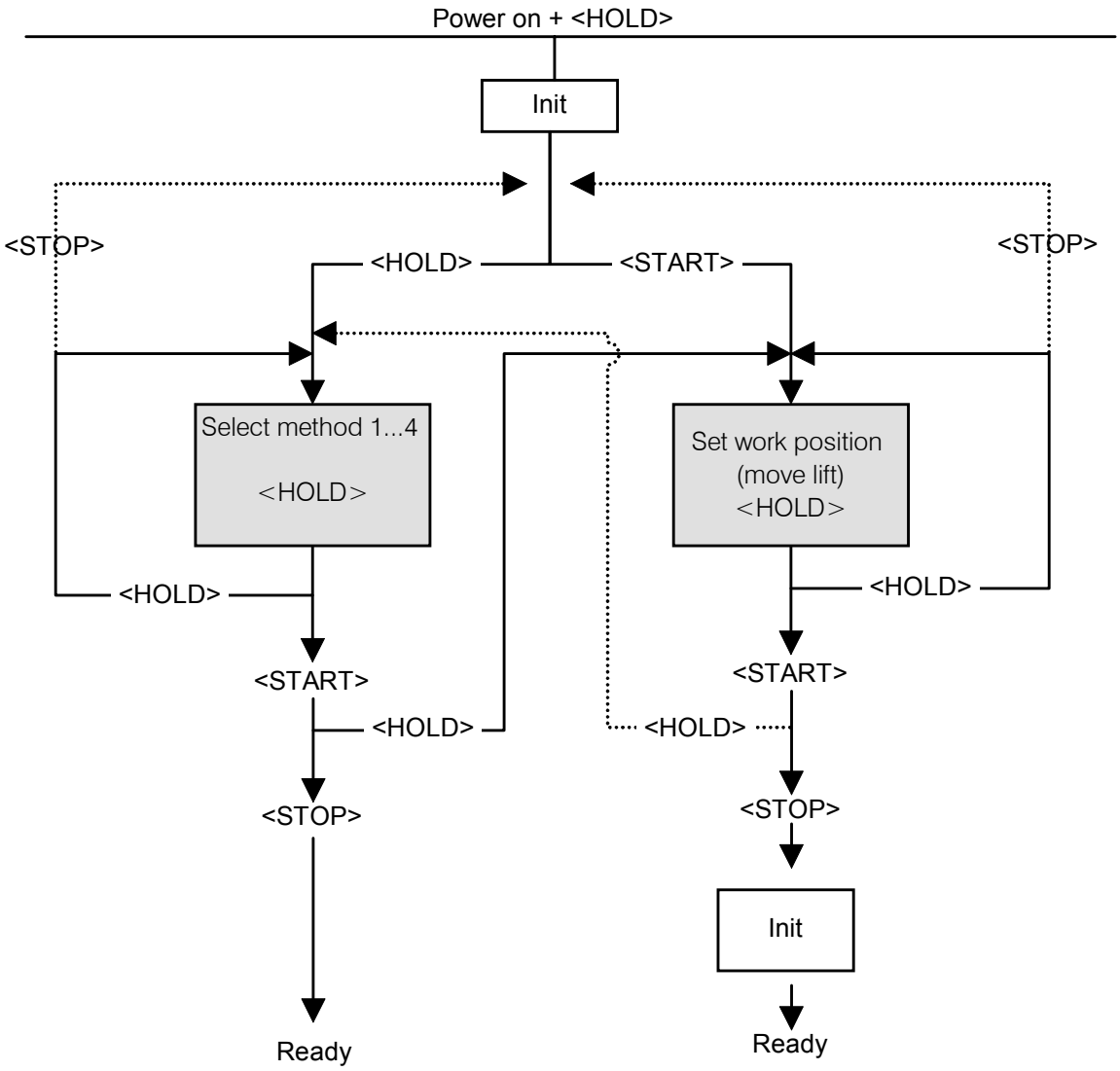


Fig. 16 Configuration

If you just want to select a method:

1. Switch off Autosampler.
2. Press <HOLD> and simultaneously switch on Autosampler. The green LED blinks.
3. Press <HOLD> again, to select method 1. The red LED blinks slowly. To select method 2 press <HOLD> again. The red LED blinks double times.
   To select method 3 or 4 press <HOLD> again. The red LED will display the selected method by the blinking frequency.

4. Accept the selected method with <START>.
5. To return to the basic state, press the <STOP> key.

If you just want to define the work position:

1. Switch off Autosampler .
2. Press <HOLD> and simultaneously switch on Autosampler. The green LED blinks.
3. Press <START>. The green LED blinks twice.
4. Press <HOLD> to run the lift downward. The red LED slowly. Press <HOLD> again and again to set the work position exactly. Each time the <HOLD> key is pressed, the direction of the lift movement is reversed. The PEEK needle should be immersed deep enough to assure a trouble-free aspiration of the sample or. Depending on your application you may want to aspirate tho whole sample. In the latter case drive the lift down until the needle reaches the bottom of the sample vial.
5. The lift position set can be accepted with the <START> key.
6. Reestablish basic state of the 813 Compact Autosampler by pressing the <STOP> key.

3.3 RAM initialization

The internal software of the 813 Compact Autosampler may be initialized to reset all instrument settings after serious malfunctions, which should be very scarce of course. All settings (including the not accesible ones) will be reset to factory defaults.

Initialization can be done by pressing all keys simultaneously while switching on the instrument.

It may be appropriate to initialize the 813 Compact Autosampler before using it the first time.

and "Power on"

Method selection and the definition of the working position has to be redone after RAM initialization.

3.4 The methods

All methods of the 813 Compact Autosampler make use of the built-in peristaltic pump to aspirate the sample and to fill the sample loop of the Ion chromatograph connected. The pump duration is controlled by the time program of the Ion chromatograph's PC software by sending Remote signals to the Autosampler.

The number of samples to be processed is to be set in the sample queue of the control software. The Autosampler should be stopped manually after processing the last sample.

Method 1 (detailed command sequence, see *section 4.2 Sequences*)

Single determination with air gap after each run, needle lifted after sample transfer.

Sequence:

1. Await first Remote signal of the instrument.
2. Get sample tube and immerse needle.
3. On receiving second Remote signal, switch on the peristaltic pump. Sample is transferred.
4. Await third Remote signal. The instrument starts its determination.
5. Peristaltic pump is switched off after 12 s.
6. Raise needle out of sample and aspirate air for 6 s.

Method 2 (detailed command sequence, see *section 4.2 Sequences*)

Single determination, no air gap, needle remains in sample after sample transfer.

Sequence:

1. Await first Remote signal of the instrument.
2. Get sample tube and immerse needle.
3. On receiving second Remote signal, switch on the peristaltic pump. Sample is transferred.
4. Await third Remote signal. The instrument starts its determination.
5. Peristaltic pump is switched off after 12 s.

Method 3 (detailed command sequence, see *4.2 Sequences*)

Double determination of each sample, no air gap, needle remains in sample after sample transfer.

Sequence:

1. Await first Remote signal of the instrument.
2. Get sample tube and immerse needle.
3. On receiving second Remote signal, switch on the peristaltic pump. Sample is transferred.
4. Await third Remote signal. The instrument starts its determination.
5. Peristaltic pump is switched off after 12 s.
6. Await first Remote signal of the instrument again.
7. On receiving second Remote signal, switch on the peristaltic pump. Sample is transferred.
8. Await third Remote signal. The starts the second determination.
9. Peristaltic pump is switched off after 12 s.

Method 4 (detailed command sequence, see *4.2 Sequences*)

Triple determination of each sample, no air gap, needle remains in sample after sample transfer.

Sequence:

1. Await first Remote signal of the instrument.
2. Get sample tube and immerse needle.
3. On receiving second Remote signal, switch on the peristaltic pump. Sample loop is transferred.
4. Await third Remote signal. The instrument starts its determination.
5. Peristaltic pump is switched off after 12 s.
6. Await first Remote signal of the instrument again.
7. On receiving second Remote signal, switch on the peristaltic pump. Sample is transferred.
8. Await third Remote signal. The instrument starts the second determination.
9. Peristaltic pump is switched off after 12 s.
10. Await first Remote signal of the IC again.
11. On receiving second Remote signal, switch on the peristaltic pump. Sample is transferred.
12. Await third Remote signal. The instrument starts the third determination.
13. Peristaltic pump is switched off after 12 s.

3.5 The Metrohm IC control software

To use the 813 Compact Autosampler with a 761 Compact IC or a 790 Personal IC one has to create a time program. First of all the IC has to send a Remote signal (Remote line 3) to synchronize the command sequence (first Remote signal) of the 813 Compact Autosampler. After that the injection valve is switched to 'Fill' position. Then a second Remote signal starts the filling of the sample loop. The pump duration for filling the sample loop is defined by the third Remote signal. After sending this Remote signal the injection valve is switched to 'Inject' position immediately which starts the data aquisition. During sample injection the peristaltic pump of the 813 Compact Autosampler is still running. 12 s after receiving the Remote signal the Autosampler will stop the pump.

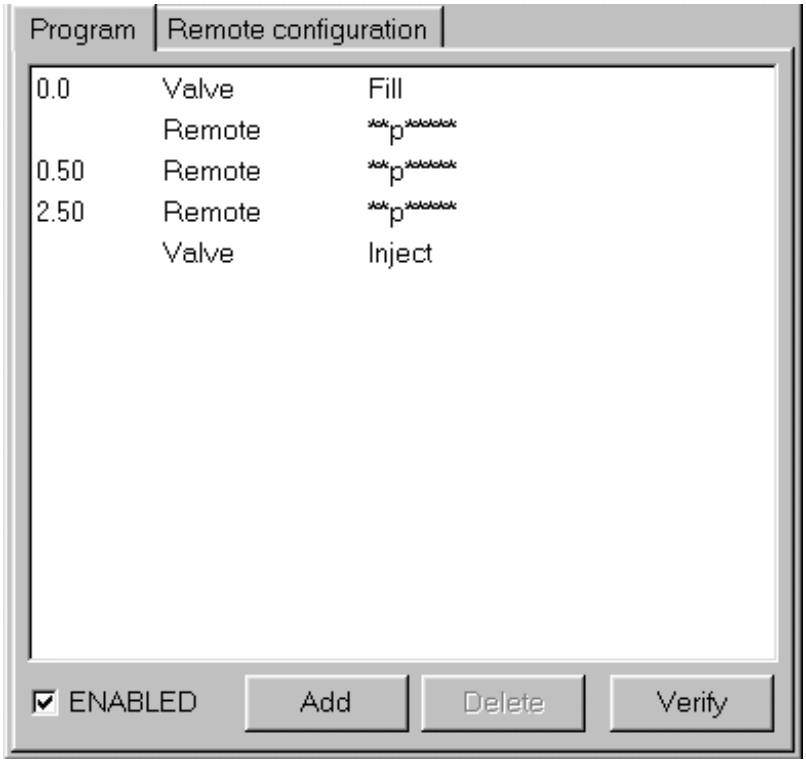


Fig. 17 Time program of the IC control software

3.5.1 Operational conditions

To ensure a correct interconnection (Autosampler – Ion chromatograph), the following conditions must be met:

- When the Ion chromatograph is operational the 813 Compact Autosampler hast to be started before the 'Sample Queue' of the IC.

- When using the 761 Compact IC the initial state of the Remote line 3 has always to be set to 0 (set **System startup values**: **Remote line 3 = 0**).

3.6 Modular Metrohm IC System 732/733

The 813 Compact Autosampler can be controlled directly by a Metrohm 732 IC Detector or by a PC control software, such as the Metrohm IC Net 2.0 using the remote control lines of the 732 IC Detector. See the 732 IC Detector user manual for details or read the IC Net 2.0 documentation.

3.7 Metrohm 746 VA Trace Analyzer

Using a 813 Compact Autosamplers with a 746 VA Trace Analyzer require modified command sequences and monitoring settings.

Between each sample determination a rinsing procedure for the tubings has to be executed. For this purpose place a sample tube containing rinsing solution on each second (even) rack position. The samples to be determined have to be placed between those rinsing tubes. This reduces the amount of a sample series to 18 samples max.

3.7.1 Monitoring

The number of samples of a series is defined on the monitoring page of the 746 VA Trace Analyzer, see below.

```
Auto.samples    on      18  of  160
Auto.batch      on      0   of  18
Start interval                  0.0 h
```

3.7.2 Command sequence

A command sequence of the 746 VA Trace Analyzer has to contain explicit trigger signals for the 813 Compact Autosampler that are to be sent via the Remote output line 2. Use the 'SETCTRL' command to send the required pulses, see line 4 and 5 of the example method on the next page.

Sample method for the 746 VA Trace Analyzer:

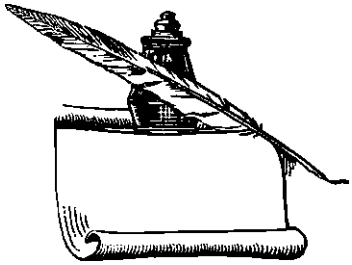
```
     Instructions   t/s   Main parameters            Auxiliary parameters
     ------------ -----  ------------------------  ------------------------
 1   STIR                Rot.speed      2000 /min
 2   PURGE
 3   SMPL/M              V.fraction          mL     V.total              L
 4   SETCTRL        1.0  Code         *****1**      Message
 5   SETCTRL             Code         *****0**      Message
 6   REM           30.0  move to sample
 7   SETCTRL        1.0  Code         *****1**      Message
 8   SETCTRL             Code         *****0**      Message
 9   REM          300.0  transfer sample
10   SETCTRL        1.0  Code         *****1**      Message
11   SETCTRL             Code         *****0**      Message
12   REM                 stop pump
13   DOS>M               Soln.name    Buffer        V.add         2.000 mL
14   PURGE         90.0
15   (ADD
16    STIR               Rot.speed      2000 /min
17   PURGE         30.0
18   (REP
19     SEGMENT           Segm.name    NiCoAdSV
20     REP)1
21     ADD>M             Soln.name    Standard      V.add         0.010 mL
22   ADD)2
23   RINSE               Cycles            1        V.rinse      20.000 mL
24   SETCTRL        1.0  Code         *****1**      Message
25   SETCTRL             Code         *****0**      Message
26   REM           20.0  move to rinsing position
27   SETCTRL        1.0  Code         *****1**      Message
28   SETCTRL             Code         *****0**      Message
29   REM          300.0  rinse tubes
30   SETCTRL        1.0  Code         *****1**      Message
31   SETCTRL             Code         *****0**      Message
32   REM                 stop pump
33   RINSE               Cycles            1        V.rinse      40.000 mL
34   RINSE               Cycles            2        V.rinse      15.000 mL
35   END
```

3.7.3 Conditions to be met

For the correct intercommunication of the 813 Compact Autosampler and the 746 VA Trace Analyzer the following conditions must be met:

- Method 2 of the 813 Compact Autosampler has to be selected.
- Always start the method of the 813 Compact Autosampler first, then you can start the 746 VA Trace Analyzer.
- Ensure that the control line 2 (Remote output 2) of the 746 VA Trace Analyzer is reset (inactive state) before you start the sample series.

4 Appendix



4.1 Error Messages

An error occurring during a sample series is displayed by a blinking red LED. The number of flashes indicates the error number. If an error occurs during processing of a sample series, the changer will then be switched into the 'HOLD' state. The current method has to be halted by pressing <STOP>.

The list of possible error messages and their causes:

1* RAM defect	Call Metrohm-Service.
3* battery low	The battery for the permanent storage of the settings must be replaced.
6* changer low power	The power supply cannot deliver enough power for the simultaneous operation of all components currently in use (pump and lift).
7* rack data missing	No sample rack is in position or no rack data can be found for the sample rack that is in place.
8* invalid rack code	The rack code read by the changer could not be found in the internal position tables.
10* raise lift first	Turning of a rack could not be carried out because the lift was below the rest (shift) position.
12* changer overload	Load or resistance too large to turn the rack.

4.2 Sequences

The available Autosampler methods are described briefly in section *3.4* The following listings explain the sequences in detail.

Method 1

Single determination with air gap after each run, needle lifted after sample transfer.

```
813 Compact Autosampler          813.0010  ← Program version
parameters
  method                  813_1            ← Method  name
  number of samples:          *            ← Number of samples unlimited
>start sequence
   1 SAMPLE:    =             1            ← First rack position
>sample sequence
   1 SCN:Rm:           *****1**            ← Await 1st Remote signal
   2 MOVE  1      :      sample            ← Move next sample to tower
   3 LIFT: 1   :           work mm         ← Lift to work position / immerse needle
   4 SCN:Rm:           *****1**            ← Await 2nd Remote signal
   5 PUMP  1.1   :           on            ← Switch on pump
   6 WAIT                    5 s           ← Waiting time
   7 SCN:Rm       :    *****1**            ← Await 3rd Remote signal
   8 WAIT                   12 s           ← Waiting time  for sample transfer
   9 PUMP  1.1   :          off            ← Switch off pump
  10 LIFT: 1   :              0 mm         ← Lift to rest position / raise needle
  11 PUMP  1.1   :            6 s          ← Switch on pump for 6 seconds
>final sequence
>changer settings                          ------ Settings for changer functions ----------
  rack number               0
  lift rate                12 mm/s
  shift rate               20
  shift direction:       auto.
>manual stop
          ------------
```

Method 2

Single determination, no air gap, needle remains in sample after sample transfer.

```
813 Compact Autosampler          813.0010 ← Program version
parameters
  method                  813_2          ← Method  name
  number of samples:        *            ← Number of samples unlimited
>start sequence
   1 SAMPLE:    =            1           ← First rack position
>sample sequence
   1 SCN:Rm:          *****1**           ← Await 1st Remote signal
   2 MOVE  1     :     sample            ← Move next sample to tower
   3 LIFT: 1   :         work mm         ← Lift to work position / immerse needle
   4 SCN:Rm:          *****1**           ← Await 2nd Remote signal
   5 PUMP  1.1   :          on           ← Switch on pump
   6 WAIT                    5 s         ← Waiting time
   7 SCN:Rm      :    *****1**           ← Await 3rd Remote signal
   8 WAIT                   12 s         ← Waiting time  for sample transfer
   9 PUMP  1.1   :         off           ← Switch off pump
>final sequence
>changer settings                        ------ Settings for changer functions ----------
  rack number               0
  lift rate                12 mm/s
  shift rate               20
  shift direction:       auto.
>manual stop
          ------------
```

Method 3

Double determination of each sample, no air gap, needle remains in sample after sample transfer.

```
813 Compact Autosampler          813.0010 ← Program version
parameters
  method                  813_3          ← Method name
  number of samples:          *          ← Number of samples unlimited
>start sequence
   1 SAMPLE:    =             1          ← First rack position
>sample sequence
   1 SCN:Rm:           *****1**          ← Await 1st Remote signal
   2 MOVE  1      :      sample          ← Move next sample to tower
   3 LIFT: 1   :           work mm       ← Lift to work position / immerse needle
   4 SCN:Rm:           *****1**          ← Await 2nd Remote signal
   5 PUMP  1.1   :           on          ← Switch on pump
   6 WAIT                     5 s        ← Waiting time
   7 SCN:Rm       :    *****1**          ← Await 3rd Remote signal
   8 WAIT                    12 s        ← Waiting time  for 1st sample transfer
   9 PUMP  1.1   :          off          ← Switch off pump
  10 SCN:Rm:           *****1**          ← Await 1st Remote signal again
  11 WAIT                     5 s        ← Waiting time
  12 SCN:Rm:           *****1**          ← Await 2nd Remote signal
  13 PUMP  1.1   :           on          ← Switch on pump
  14 WAIT                     5 s        ← Waiting time
  15 SCN:Rm       :    *****1**          ← Await 3rd Remote signal
  16 WAIT                    12 s        ← Waiting time  for 2nd sample transfer
  17 PUMP  1.1   :          off          ← Switch off pump
>final sequence
>changer settings                        ------ Settings for changer functions ----------
  rack number                0
  lift rate                 12 mm/s
  shift rate                20
  shift direction:       auto.
>manual stop
          ------------
```

Method 4

Triple determination of each sample, no air gap, needle remains in sample after sample transfer.

```
813 Compact Autosampler          813.0010  ← Program version
parameters
  method                  813_4           ← Method name
  number of samples:        *             ← Number of samples unlimited
>start sequence
   1 SAMPLE:   =            1             ← First rack position
>sample sequence
   1 SCN:Rm:          *****1**            ← Await 1st Remote signal
   2 MOVE  1     :     sample             ← Move next sample to tower
   3 LIFT: 1  :          work mm          ← Lift to work position / immerse needle
   4 SCN:Rm:          *****1**            ← Await 2nd Remote signal
   5 PUMP  1.1  :          on            ← Switch on pump
   6 WAIT                   5 s          ← Waiting time
   7 SCN:Rm      :    *****1**            ← Await 3rd Remote signal
   8 WAIT                  12 s          ← Waiting time for 1st sample transfer
   9 PUMP  1.1  :         off            ← Switch off pump
  10 SCN:Rm:          *****1**            ← Await 1st Remote signal again
  11 WAIT                   5 s          ← Waiting time
  12 SCN:Rm:          *****1**            ← Await 2nd Remote signal
  13 PUMP  1.1  :          on            ← Switch on pump
  14 WAIT                   5 s          ← Waiting time
  15 SCN:Rm      :    *****1**            ← Await 3rd Remote signal
  16 WAIT                  12 s          ← Waiting time for 2nd sample transfer
  17 PUMP  1.1  :         off            ← Switch off pump
  18 SCN:Rm:          *****1**            ← Await 1st Remote signal again
  19 WAIT                   5 s          ← Waiting time
  20 SCN:Rm:          *****1**            ← Await 2nd Remote signal
  21 PUMP  1.1  :          on            ← Switch on pump
  22 WAIT                   5 s          ← Waiting time
  23 SCN:Rm      :    *****1**            ← Await 3rd Remote signal
  24 WAIT                  12 s          ← Waiting time for 3rd sample transfer
  25 PUMP  1.1  :         off            ← Switch off pump
>final sequence
>changer settings                         ------ Settings for changer functions ----------
  rack number               0
  lift rate                12 mm/s
  shift rate               20
  shift direction:       auto.
>manual stop
          -----------
```

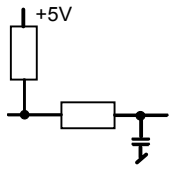
4.3 Technical specifications

Dimensions	Height: 0.50 m, Width: 0.28 m, Depth: 0.49 m	
Weight	12.3 kg (incl. sample rack)	
Material	Housing:	Metal case, multiple enameling
	Splash protection:	Polymethylmethacrylate (PMMA)
	Sample rack:	Polypropylene (PP)
Lift path	ca. 125 mm	
Lift	Load:	ca. 30 N
	Stroke speed:	12 mm/s
Turntable	Rotational speed:	20 angular degrees/s
Pump	*Pump type*	1-channel peristaltic pump with rotational speed of 20 /min
	Pump capacity	*(with water, without counterpressure)* with 6.1826.040 pump tubing: typ. 0.9…1.1 mL/min (depends on contact pressure)
	Pressure	max. 1.5 bar (0.15 MPa)
	Pump tubing material	PVC (Tygon®)

Remote-RS232 interface

Parallel interface for remote control by external devices

Input: t_p t_p >20 ms

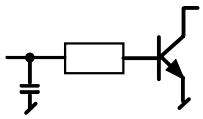


active = low
inactive = high

Output: t_p t_p >200 ms

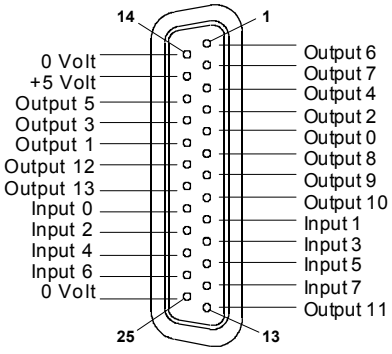
V_{CEO} = 40 V

I_C = 20 mA



active = low
inactive = high

The +5 V supply line may by charged with 20 mA maximally.



Temperatures

Nominal operating range 5...40 °C
at 20...80 % atmospheric humidity

Storage, transport –20...+60 °C

60 °C	at atmospheric humidity	<50%
50 °C	" "	<85%
40 °C	" "	<95%

Mains connection

Voltage 100...120 V, 220...240 V
Frequency 50...60 Hz
Power consumption 40 VA
Fuse 0.5 AT (110 V), 0.25 AT (220 V)

Safety specifications

Construction / Testing According to IEC 1010 / EN 61010 / UL 3101-1, protection class 1

Degree of protection IP 22

The Instructions for Use include information and warnings which must be heeded by the user to assure safe operation of the instrument.

Electromagnetic compatibility (EMC)

Emitted interference

Standards met:
EN55011 (class B), EN55022 (class B), EN50081-1 01.92

Immunity to interference

Standards met:
IEC801-2/IEC1000-4-2 (class 4), IEC801-3/ IEC1000-4-3 (class 2), IEC801-4/IEC1000-4-4 (class 3), IEC801-5/IEC1000-4-5 (class 2/3), IEC801-6/IEC1000-4-6 (class 2), EN55011 (class B), EN55022 (class B), EN50081-1/2 01.92, EN50082-1 01.92, EN61000-3, EN61316-1 03.97

4.4 Maintenance and servicing

4.4.1 Maintenance by Metrohm service

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

4.4.2 Care of the unit

The 813 Compact Autosampler requires proper care and attention. Ex-cessive contamination of the instrument could possibly lead to malfunctions and a shorter service life of the inherently rugged mechanical and electronic parts.

Wipe up spilled chemicals and solvents immediately. The connectors (in particular the power supply) should be protected from contamina-tion. The 813 Compact Autosampler should never be operated without plug cover

The unit has been constructed in such a way as to virtually eliminate the possibility of penetration of corrosive media into the interior of the instruments. If such a situation does occur, disconnect the mains plug of the 766 Compact Autosampler immediately 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 2.2.

4.4.3 Replacing the pump tubing

Pump tubings are consumable material with a limited lifetime and should be replaced 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 2.3.7*. 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 ***15*** on the right-hand side (the pre-set contact pressure remains unchanged).

To replace a pump tubing proceed as follows:

1 Remove old pump tubing

- Press contact pressure lever ***11*** on the tubing cartridge down as far as it will go.
- Release tubing cartridge ***11*** from holding clamp ***14*** by pressing down snap-action lever ***15*** and remove from mounting pin ***10*** at the 813 Compact Autosampler (see *Fig. 1*).
- Remove old pump tubing.

2 Insert new pump tubing

- Insert the new pump tubing ***8*** (6.1826.040) in the tubing cartridge as shown in *Fig. 9*. The Stopper ***32*** must click into the corresponding holder on the left-hand side of the tubing cartridge.
- Place the tubing cartridge on mounting pin ***10*** and press down on the right-hand side until snap-action lever ***15*** clicks into position on holding clamp ***14***. Take care that no kinks are formed in the pump tubing.

3 Set contact pressure

- Press contact pressure lever ***13*** 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.

The 6.1826.0X0 pump tubing is made of PVC and must not be used for rinsing with solutions which contain acetone. In such cases, rinse with different pump tubing or a different pump.

4.5 Warranty and conformity

4.5.1 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 this case, 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 are not a result of material or manufacturing faults are also charged during the warranty period. For parts of outside manufacture 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.

Concerning defects in material, construction or design as well as the absence of guaranteed features, the orderer 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 embedment in wood shavings or similar material, the parts must be packed in a dustproof package (for instruments, 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).

No warranty responsibility whatsoever will be accepted by Metrohm for damage which arises as a result of non-compliance with these instructions.

4.5.2 Certificate of Conformity and System Validation

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.

Name of commodity:	813 Compact Autosampler
System software:	stored in ROMs
Name of manufacturer:	Metrohm Ltd., Herisau, Switzerland
Technical information:	Voltages: 100…120, 220…240 V Frequency: 50…60 Hz

This Metrohm instrument has been built and has undergone final type testing according to the standards:

Electromagnetic compatibility

IEC 801-2 / level 3, IEC 801-3 / level 2, IEC 801-4 / level 3, EN 55011 / class B, EN 55022 / class B, EN 50081-1/2 1992, EN 50082-1 1997

Security specifications

IEC 1010, EN 61010, UL 3101-1

It has also been certified by the Swiss Electrotechnical Association (SEV), which is member of the International Certification Body (CB/IEC).

The technical specifications are documented in the instruction manual.

The system software, stored in Read Only Memories (ROMs) has been validated in connection with standard operating procedures in respect to functionality and performance. The features of the system software are documented in the instruction manual.

Metrohm Ltd. is holder of the SQS-certificate of the quality system ISO 9001 for quality assurance in design/development, production, installation and servicing.

Herisau, March 5, 2001

Dr. J. Frank	Ch. Buchmann
Development Manager	Production and Quality Assurance Manager

Ionenanalytik • Analyse des ions • Ion analysis • Análisis iónico

813 Compact Autosampler

CE

EU Declaration of conformity

The METROHM AG company, Herisau, Switzerland hereby certifies that the in-strument:

813 Compact Autosampler

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

Source of the specifications:

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

Description of the instrument:

Sample changer for automatic processing of sample series with ion chromatographic methods

Herisau, March 5, 2001

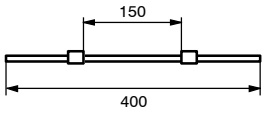
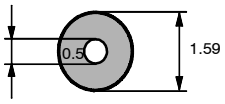
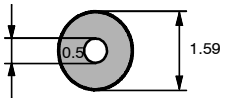
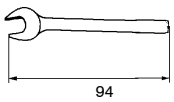
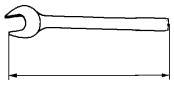
Dr. J. Frank	Ch. Buchmann
Development Manager	Production and Quality Assurance Manager

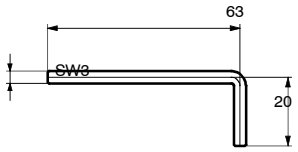
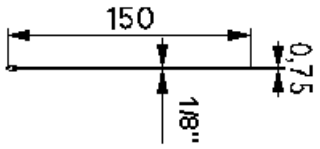
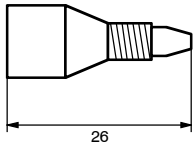
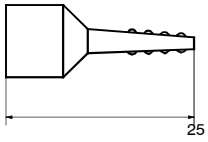
4.6 Standard equipment

Subject to changes! All dimensions are given in mm.

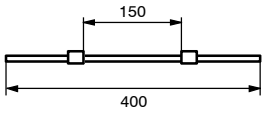
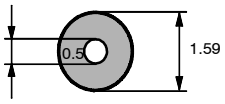
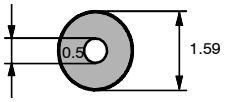
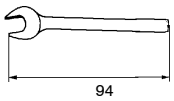
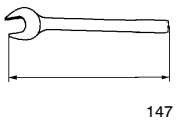
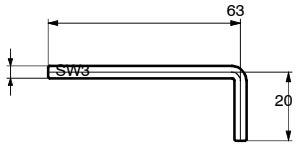
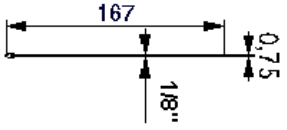
The following parts are included:

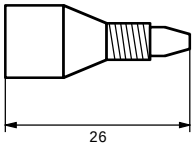
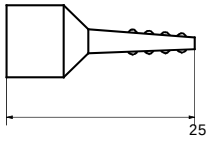
2.813.0010 Compact Autosampler (for IC applications)

Quant.	Order No.	Description
2	6.1826.040	**Pump tubing** made of PVC (Tygon®); with 2 firmly attached black-black stoppers; i.d. = 0.76 mm, e.d. = 2.27 mm 
1	6.1831.050	**PEEK Capillary** Length = 40 cm 
2	6.1831.060	**PEEK Capillary** Length = 100 cm 
1	6.2041.750	**Sample rack** for 36 sample tubes 6.2743.050 (11 mL) or 6.2743.040 (2,5 mL)
1	6.2122.0X0	**Mains cable** to customers specifications: Cable socket / Cable plug 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	6.2141.130	**Connection cable (Remote)** Connection cable 813 Compact Autosampler – Compact IC 761, Personal IC 790 or 732 IC Detector
1	6.2142.110	**Keyboard** for 813 Compact Autosampler
1	6.2621.060	**Open-end spanner 5/16"** 
2	6.2621.090	**Open-end spanner 1/2"** 

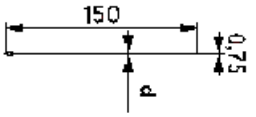
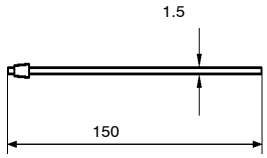
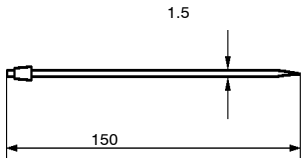
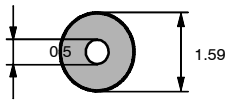
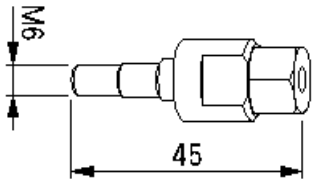
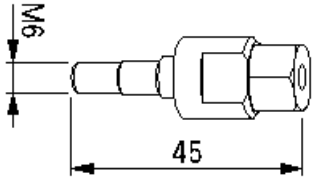
Quant.	Order No.	Description
1	6.2621.100	**Allen key 3 mm** For Allen screws on sample rack and for splash protection 
1	6.1835.010	**PEEK needle** For aspiration of solutions from sealed sample tubes 
1	6.2743.057	**PP Sample tubes (11 mL)** For 6.2041.750 sample rack set of 200
1	6.2743.077	**PE Caps** For sealing the 6.2743.057 sample tubes set of 200
1	6.2744.010	**PEEK Compression fitting** For the connection of 6.1831.0X0 PEEK capillaries or 6.1803.0X0 PTFE capillaries; set of 5 
1	6.2744.030	**PEEK Coupling** Connection between 6.2744.010 PEEK compression fitting and 6.1826.0X0 pump tubing set of 4 
1	6.2751.070	**Splash protection** Must be installed at the tower of the 813 Compact Autosampler.
1	6.2752.010	**Plug cover** Must be installed at the 813 Compact Autosampler.
1	6.2755.000	**Tubing cartridge** For peristaltic pump at 813 Compact Autosampler
1	8.813.1003	**Instructions for Use (English)** for 813 Compact Autosampler

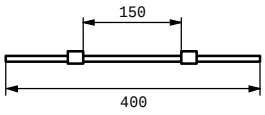
2.813.0020 Compact Autosampler (for VA applications)

Quant.	Order No.	Description
2	6.1826.020	**Pump tubing** made of PVC (Tygon®); with 2 firmly attached black-black stoppers; i.d. = 0.76 mm, e.d. = 2.27 mm 
1	6.1831.050	**PEEK Capillary** Length = 40 cm 
1	6.1822.410	**PEEK Capillary 1x M6** Length = 120 cm 
1	6.2041.750	**Sample rack** for 36 sample tubes 6.2743.050 (11 mL) or 6.2743.040 (2,5 mL)
1	6.2122.0X0	**Mains cable** to customers specifications: Cable socket — Cable plug 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	6.2142.110	**Keyboard** for 813 Compact Autosampler
1	6.2621.060	**Open-end spanner 5/16"** 
2	6.2621.090	**Open-end spanner ½"** 
1	6.2621.100	**Allen key 3 mm** For Allen screws on sample rack and for splash protection 
1	6.1835.030	**PEEK tube** For aspiration of solutions from open sample tubes 

Quant.	Order No.	Description
1	6.2743.057	**PP Sample tubes (11 mL)** For 6.2041.750 sample rack set of 200
1	6.2744.010	**PEEK Compression fitting** For the connection of 6.1831.0X0 PEEK capillaries or 6.1803.0X0 PTFE capillaries; set of 5 
1	6.2744.030	**PEEK Coupling** Connection between 6.2744.010 PEEK compression fitting and 6.1826.0X0 pump tubing set of 4 
1	6.2751.070	**Splash protection** Must be installed at the tower of the 813 Compact Autosampler.
1	6.2752.010	**Plug cover** Must be installed at the 813 Compact Autosampler.
1	6.2755.000	**Tubing cartridge** For peristaltic pump at 813 Compact Autosampler
1	8.813.1003	**Instructions for Use (English)** for 813 Compact Autosampler

4.7 Optional accessories

Order No.	Description
6.1835.020	**PEEK needle** For aspiration of solutions from open sample tubes 
6.1835.000	**PEEK needle** For aspiration of solutions from open sample tubes 
6.2624.000	**Steel needle** For aspiration of solutions from sealed sample tubes 
6.1831.040	**PEEK capillary** Length = 15 cm 
6.2833.000	**Needle holder (1/8")** for PEEK needle 6.1835.010 and 6.1835.020 
6.2833.010	**Needle holder (1/16")** For steel needle 6.2624.000 and PEEK needle 6.1835.000 
6.2743.040	**PP Sample tubes (2,5 mL)** For sample rack 6.2041.750 set of 2000
6.2743.047	**PP Sample tube (2,5 mL)** For sample rack 6.2041.750 set of 200

6.2743.050	**PP Sample tube (11 mL)** For sample rack 6.2041.750 set of 2000
6.2743.077	**PE Caps** For sealing the 6.2743.057 sample tubes set of 200
6.2743.060	**PE Caps** For sealing the 6.2743.0x0 sample tubes set of 1000
6.2125.120	**Adaptor for remote connection** with 5 connections for remote cables
6.2141.150	**Connection cable (Remote)** Connection cable 813 Compact Autosampler – 757 Computrace/ 731 Relay Box/Dosimat
6.1826.020	**Pump tubing** made of PVC (Tygon®); with two firmly attached blue-blue stoppers;i.d. = 1.6 mm, e.d. = 2.27 mm. For use with preconcentration columns. 

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