ANALYT MESSTECHNIK



OPERATING MANUAL

SKC AirChek XR5000 Sample Pump

Charging, programming, flow rate verification and sampling with the AirChek XR5000 personal air sampling pump, 5 to 5000 mL/min. It also covers battery replacement, troubleshooting, technical data and ordering information.

AMTC-MN-0039

Rev. 2 · October 2026

About this manual

The SKC AirChek® XR5000 is a constant-flow personal air sampling pump. On its own it covers 1000 to 5000 mL/min for particulate sampling on filters; with a low flow tube holder it samples gases and vapours on sorbent tubes at 5 to 500 mL/min. It runs on a rechargeable lithium-ion battery pack, in a standard or a high-power version, and is set from a three-key keypad.

This manual takes you from unpacking to a finished sample: charging the battery, programming flow, run time and start delay, verifying the flow rate and sampling with filters or sorbent tubes. Later chapters cover battery replacement and resetting the pump, troubleshooting, technical data and the order numbers of accessories and spare parts.

Read Safety (p. 6) before you use the pump for the first time — the intrinsic-safety listing applies only with the battery packs named there. For a first sample, follow Commissioning (p. 12), Verifying the flow rate (p. 17) and Sampling (p. 20) in that order.

The manual applies to the AirChek XR5000 pump, Cat. No. 210-5001 (high-power battery) and 210-5002 (standard battery), and to the kits built around them. Analyt-MTC supplies, services and supports the pump; for questions, repairs and spare parts see Service, warranty and contacts (p. 31).

Keep this manual for the lifetime of the product. The current revision is on the product page at analyt-mtc.com.

Conventions in this manual:

- Keys, buttons and menu entries are printed like this: ▲.

Abbreviations

Abbreviation	Meaning
CPC	Constant pressure controller
ID	Inside diameter (of tubing)
LCD	Liquid crystal display
LED	Light-emitting diode
MCE	Mixed cellulose ester (filter material)
NIOSH	National Institute for Occupational Safety and Health (United States)
OSHA	Occupational Safety and Health Administration (United States)
PTFE	Polytetrafluoroethylene (filter material)
PVC	Polyvinyl chloride (filter material)
RFI/EMI	Radio-frequency interference / electromagnetic interference

How this manual marks information

⚠ WARNING

A hazardous situation which, if not avoided, could result in death or serious injury.

NOTICE

Practices not related to personal injury — damage to the product, the process or the sample.

Note
Information that helps understanding; never a hazard.

Tip
A shortcut or recommendation; never a hazard.

Keys are written as they appear on the pump: ▲ (up), ∗ (star) and ▼ (down). Keys joined by a plus sign are pressed together: ▲+▼. Keys separated by spaces are pressed one after the other: ∗ ▲ ▼ ∗. Text shown on the display is written in quotation marks, for example “ADJ FLOW”.

Document information

Title	SKC AirChek XR5000 Sample Pump — Operating manual
Document number	AMTC-MN-0039
Revision	Rev. 2 — October 2026
Applies to	AirChek XR5000 sample pump, Cat. No. 210-5001 and 210-5002, and kits built around them
Language	English
Manufacturer	SKC Inc.

Revision history

Rev.	Date	Change
2	October 2026	Quality programme: new document type, number and identity pages.
1	October 2026	First issue.

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CHAPTER 1

Safety

Read this chapter before you use the pump for the first time. The AirChek XR5000 keeps its hazardous-location listing only on an approved battery pack, charged outside the hazardous area.

Intended use

The AirChek XR5000 is a constant-flow personal air sampling pump. It samples particulates on filters at 1000 to 5000 mL/min and, with a low flow tube holder, gases and vapours on sorbent tubes at 5 to 500 mL/min. Use it as this manual describes, powered only by the approved battery packs listed under Hazardous locations (p. 6).

Charging the pump or running it from the charger in a hazardous location, using another battery pack or charger, and repairs other than those this manual describes are misuse: they can make the pump unsafe, as the sections below explain.

Hazardous locations

A pump listed for intrinsic safety carries the cULus Listed mark on its label. It keeps the listing only on one of these battery packs, identified by the catalogue number on the battery label:

- high-power (4-cell) Li-Ion battery pack: P85004B;
- standard (2-cell) Li-Ion battery pack: P85002B.

Replacement packs are supplied as P85004B and P85002B (see Spare parts (p. 30)).

⚠ WARNING

Charging the pump, or running it from the charger, in a hazardous location can ignite an explosive atmosphere. So can a pump without the cULus Listed mark, or one powered from another battery pack or device, because it is not covered by the UL listing for intrinsic safety. This can cause an explosion. Before you take the pump into a hazardous location, check that the pump label carries the cULus Listed mark and that the battery label carries one of the catalogue numbers above. Never charge the pump, or run it from the charger, in a hazardous location. Power the pump only from an approved battery pack.

Battery pack

A damaged, short-circuited or overheated battery pack can start a fire. It also holds the pump's intrinsic-safety circuitry, so any change to it affects the listing.

⚠ WARNING

A damaged, short-circuited or overheated battery pack can start a fire and cause burns. Tampering with the pack, or using a repaired or rebuilt pack, also voids the warranty and the UL listing for intrinsic safety. Do not open, disassemble, short-circuit or crush the battery pack, and do not burn it or expose it to fire or high temperatures. Do not tamper with the battery pack, and do not use a repaired or rebuilt pack.

Approved parts and repairs

Use only the battery packs and chargers designed for the AirChek XR5000 — the Single Charging Kit (Cat. No. 223-241) or the Take Charge 5 five-station charger (Cat. No. 223-441) — and the original spare parts listed in Ordering information (p. 28). Approved parts keep the pump reliable and keep its UL listing for intrinsic safety.

Apart from replacing the battery pack and resetting the pump (see Maintenance (p. 23)), repairs are service work for the manufacturer or an authorised repair centre; otherwise the warranty and the UL listing are void. Contact Analyt-MTC (see Service, warranty and contacts (p. 31)). Ignoring the warnings and cautions in this manual also voids the warranty.

NOTICE

An unapproved charger can damage the battery and the pump. Unapproved chargers, battery packs or other parts void the warranty. Use only the approved chargers and the original spare parts listed in Accessories and spare parts.

CHAPTER 2

Product description

Checking the contents

Check the delivery against the table below. If anything is missing, contact Analyt-MTC (see Service, warranty and contacts (p. 31)). The two pump models differ only in the battery pack: the high-power pack runs about twice as long, the standard pack makes the pump smaller and lighter (see Power (p. 26)).

Order code	Contents
210-5001	Pump with high-power Li-Ion battery pack and screwdriver set
210-5002	Pump with standard Li-Ion battery pack and screwdriver set
210-5001K	Single pump kit: pump with high-power Li-Ion battery pack, single charger for 100–240 V, cassette holder, soft-sided nylon carry case
210-5002K	Single pump kit: pump with standard Li-Ion battery pack, single charger for 100–240 V, cassette holder, soft-sided nylon carry case

You also need:

- Tygon tubing, 1/4 in inside diameter, 3/8 in outside diameter;
- a charger for the Li-Ion battery pack, if you ordered the pump without a kit;
- low flow accessories for sampling at 5 to 500 mL/min (see Sampling accessories (p. 28));
- a flowmeter to set and verify the flow rate, since the pump does not display it (see Flowmeters (p. 28)).

Parts of the pump



Figure 1. Pump parts (front view).
1 Inlet port with protective filter · **2** Status LED (blue) · **3** Battery charge indicator · **4** Liquid crystal display (LCD) · **5** Keypad · **6** Battery pack, standard or high-power
On the back, not shown: belt clip and battery charging jack.

The pump draws air in through the inlet port on top (1). A protective filter in the inlet housing keeps particles out of the pump; the filter and the housing can be replaced (see Spare parts (p. 30)).

The blue status LED (2) on top of the case flashes while the pump is running, and also while a programmed start delay counts down.

The display (4) shows the battery charge (3), the run time in minutes and the pump's state. It does not show the flow rate: you set and verify the flow with a flowmeter.

The battery pack (6) forms the lower part of the case. The high-power pack is taller than the standard one.

The keypad

Three keys operate the pump. Each key has its own job; pressed together or in a fixed order, they give the commands in the second table.

Key	What it does
✱	Star: switches the pump on and off; in the setup functions, moves to the next function.
▲	Up: increases the flow rate, the timed run and the run delay. Press and hold during or after a timed run to see the accumulated run time.
▼	Down: decreases the flow rate, the timed run and the run delay. Press 5 times quickly to lock or unlock the keypad.

Keys	What they do
▲+▼	Press together: starts the pump (Run) or pauses it (Hold); in the setup functions, accepts the setting and leaves the setup functions.
✱ ▲ ▼ ✱	Press one after the other on a pump that is not running (blue LED not flashing): opens the setup functions (see Opening the setup functions (p. 14)).
✱+▲ / ✱+▼	Press together while setting a timed run or run delay: changes the minutes in steps of 100.



The keypad below the display: up arrow, star key and down arrow.

Switching on and off

To…	Do this	Display
Switch on	Press and hold ∗ until the display shows “On”.	
Start or pause the pump	Press ▲+▼. The blue LED flashes while the pump runs; in Hold it stops flashing.	
Switch off	On a pump that is not running, press and hold ∗ until the display has counted down from 3 to 1 and the pump switches off. This works even when the keypad is locked.	

A pump that is not running switches itself off (sleep mode) after 5 minutes without a key being pressed.

Locking the keypad

Lock the keypad during sampling so that the settings cannot be changed by accident.

- **Lock:** in any state, press ▼ 5 times quickly. A flashing “L” appears in the lower right corner of the display.
- **Unlock:** press ▼ 5 times quickly. The “L” disappears and the keys work normally. If the “L” stays, see Troubleshooting (p. 25).

The lock stays on until you unlock the keypad; switching the pump off and on does not release it. While the keypad is locked, the setup functions cannot be opened, but ∗ still switches off a pump that is not running.



Keypad locked: “L” next to the run time.

What the display shows

Display	Meaning
	“HOLD”: the pump is paused or stopped. The number is the accumulated run time in minutes. Without “HOLD” and with the blue LED flashing, the pump is running.
	“TIMED RUN REMAINING”: a timed run is in progress; the number counts down the minutes left (see Timed run (p. 15)).

Display	Meaning
	“RUN DELAY REMAINING”: the pump waits for a programmed start; the number counts down the minutes to the start (see Run delay (p. 16)).
	Flow fault symbol (arrow against a bar) above the battery symbol: the pump could not hold the flow and has stopped (see Faults during sampling (p. 21)).

Battery charge indicator

Symbol	Charge remaining
	Three bars: fully charged, approx. 75–100 %. Normally shown after charging.
	Two bars: enough charge to run the pump, approx. 25–75 %.
	One bar: low, approx. 1–25 %. Charge the battery.
	No bars: a low-battery fault is imminent.
	No bars, flashing outline: low-battery fault. The pump goes into Hold and switches off (sleep) after 15 seconds. The accumulated run time is kept.

CHAPTER 3

Commissioning

Charge a new battery pack completely before you use the pump for the first time; it may take a few charges before the pack reaches its full capacity. Charge it again before every flow rate verification and sample: the intrinsic-safety circuitry inside the pack slowly discharges it while the pump is stored.

⚠ WARNING

Charging the pump, or running it from the charger, in a hazardous location can ignite an explosive atmosphere. This can cause an explosion. Never charge the pump, or run it from the charger, in a hazardous location. Charge only with the approved chargers listed in Approved parts and repairs (p. 7).

Connecting the charger

The Single Charging Kit (Cat. No. 223-241) consists of the charging unit (Cat. No. P22300), a power supply for 100–240 V, 50/60 Hz, and interchangeable wall plugs for different mains sockets. To charge up to five pumps at once, use the Take Charge 5 five-station charger (Cat. No. 223-441). Charge within 32 to 113 °F (0 to 45 °C).

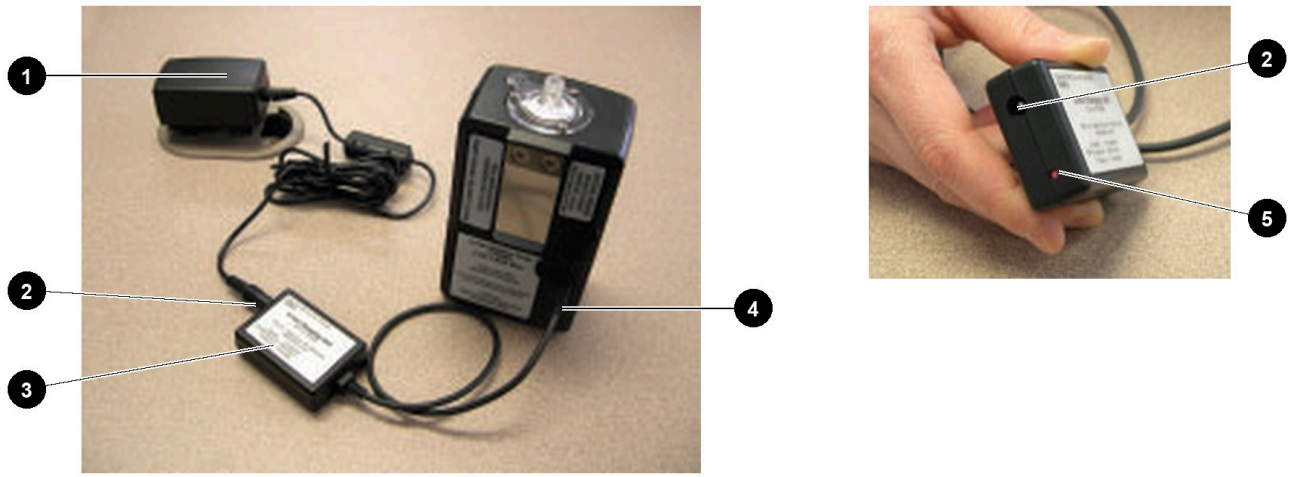


Figure 2. Charging with the single charger (left) and the charging unit (right).
1 Power supply · **2** Power-supply jack on the charging unit · **3** Charging unit · **4** Battery charging jack on the back of the pump · **5** Charge status LED



The interchangeable wall plugs slide into the power supply.

WARNING

A charger plug inserted the wrong way round, or with poor contact, short-circuits the battery pack. A short-circuited pack can start a fire and cause burns, stops working at once, and voids the warranty. Check the orientation of the plug before you insert it, and make sure that it makes good contact.

1. Make sure the pump is not running. Turn the plug of the charging unit so that the arrow on the plug faces upwards, then push it into the battery charging jack on the back of the pump (4).
2. Plug the cable of the power supply (1) into the jack on the charging unit (2).
3. Fit the wall plug for your mains socket: slide the locking tab on the power supply to the side, insert the wall plug and release the tab. Then plug the power supply into a mains outlet.
4. Leave the pump on charge until the charge status LED (5) shows that charging is complete. A standard (2-cell) battery pack takes about 4 hours, a high-power (4-cell) pack about 8 hours.
5. After charging, run the pump for about 5 minutes before you verify the flow rate. The battery then works under steadier conditions, and the flow rates verified before and after sampling agree better.

Note

The battery pack may stay on an approved charger for any length of time. For long runs, the pump may also sample while it is connected to the charger — never in a hazardous location.

Reading the charge status

The LED on the charging unit shows the charge status as a blinking pattern. Watch it for more than 5 seconds before you read it.

Charge status LED	Charge status
On, steady	Charging
On 2 s, off 0.25 s, repeating — mostly on	About 80 % charged
Off 2 s, on 0.25 s, repeating — mostly off	Charging complete



The charge status LED on the charging unit, next to the power supply jack.

The battery charge indicator on the pump's display is explained in Battery charge indicator (p. 11).

CHAPTER 4

Operation

Operation runs from programming the pump to the finished sample: set the flow rate, a timed run or a run delay in the setup functions; set and verify the flow rate with a flowmeter before every sample; take the sample; then verify the flow rate again without adjusting it.

Flow rate, timed run and run delay are set in the setup functions. A timed run stops the pump after a set number of minutes; a run delay starts it after a set number of minutes. Combine the two for a sample that starts and stops by itself.

Opening the setup functions

The setup functions open only on a pump that is not running — the blue LED does not flash — and only when the keypad is unlocked (see Locking the keypad (p. 10)).

- **Open:** press ∗ ▲ ▼ ∗.
- **Move to the next function:** press ∗.
- **Change a value:** press ▲ or ▼.
- **Accept and leave:** press ▲+▼. The pump is ready to run.

The functions appear in this order. “CLr” appears first only if the pump holds an accumulated run time.

Display	Function	Use
	“CLr”	Clears the accumulated run time.
	“ADJ FLOW”	Sets the flow rate.
	“SET TIMED RUN”	Sets the run time, 1–9999 minutes; 0 = no timed run.
	“SET RUN DELAY”	Sets the delay before the run starts, 1–9999 minutes; 0 = no delay.

Note

How the settings affect the accumulated run time:

- Changing the flow rate does *not* clear the accumulated run time.
- Changing the timed run or the run delay clears it automatically.
- “CLr” clears only the accumulated run time; it leaves the timed run and run delay settings unchanged.
- Pressing ▲+▼ after a completed timed run also clears it.

Tip

To enter a large number of minutes quickly, hold ∗ and press ▲ or ▼ at the same time: the minutes change in steps of 100.

Clearing the accumulated run time

1. On a pump that is not running, press ∗ ▲ ▼ ∗. The display shows “CLr”.
2. Press ▲+▼. The run time is cleared and the pump is ready to run.

Setting the flow rate

The display does not show the flow rate. Set it while reading a flowmeter connected to the pump inlet. For sampling, set and verify the flow through the complete sampling train as described in Verifying the flow rate (p. 17).

1. On a pump that is not running, press ∗ ▲ ▼ ∗.
2. Connect the pump inlet to a flowmeter.
3. Press ∗ until “ADJ” and “FLOW” flash on the display.
4. Press ▲ to increase or ▼ to decrease the flow until the flowmeter shows the flow you need. Dashes on the display move up or down to show the direction of the change.
5. Press ▲+▼ to accept the flow and leave the setup functions.

Timed run

The pump runs for the set time, 1 to 9999 minutes, then stops by itself.

1. On a pump that is not running, press ∗ ▲ ▼ ∗.
2. Press ∗ until “SET TIMED RUN” and “min” flash on the display.
3. Set the minutes with ▲ and ▼.
4. Press ▲+▼ to accept and leave the setup functions. The display shows the set time; the pump is ready.
5. Press ▲+▼ to start the run.

During and after a timed run	What happens or what to do
While the pump runs	The blue LED flashes. The display shows “TIMED RUN REMAINING” and counts down the minutes.
See the run time so far	Press and hold ▲: the accumulated run time appears.
Pause and resume	Press ▲+▼ to pause (Hold): the remaining and accumulated times freeze. Press ▲+▼ again to resume.
End of the run	The pump stops and shows “TIMED RUN REMAINING” and “0”. Press and hold ▲ to see the accumulated run time.
Return to the timed run setting	Press ▲+▼. This also clears the accumulated run time.

Note
If the pump switched itself off after the run and you switch it on again, it shows “TIMED RUN REMAINING” and “0”. The accumulated run time is kept: press and hold ▲ to see it.

Run delay

With a run delay, the pump starts by itself after the set time, 1 to 9999 minutes. Without a timed run it then runs until you stop it; with a timed run it also stops by itself.

Run delay, then continuous run

1. On a pump that is not running, press ∗ ▲ ▼ ∗.
2. Press ∗ until “SET RUN DELAY” and “min” flash on the display.
3. Set the minutes with ▲ and ▼.
4. Press ▲+▼ to accept and leave the setup functions. The display shows the delay; the pump is ready to start it.
5. Press ▲+▼ to start the delay.

During and after the run	What happens or what to do
During the delay	The blue LED flashes although the pump is not yet running. The display counts down the minutes to the start.
When the delay has elapsed	The pump starts. The display counts up the accumulated run time in minutes.
Pause and resume	Press ▲+▼ to pause (Hold): the run time freezes. Press ▲+▼ again to resume.
End the run	Press ▲+▼. The pump stops and shows the accumulated run time.

Note
If the pump switched itself off after the run and you switch it on again, it shows the accumulated run time.

Run delay, then timed run

1. On a pump that is not running, press ∗ ▲ ▼ ∗.
2. Press ∗ until “SET TIMED RUN” and “min” flash, and set the run time with ▲ and ▼.
3. Press ∗ to move to “SET RUN DELAY” and set the delay with ▲ and ▼.
4. Press ▲+▼ to accept both settings and leave the setup functions. The display shows the delay; the pump is ready to start it.
5. Press ▲+▼ to start the delay.

During the delay the blue LED flashes and the display counts down the minutes to the start. The pump then starts and shows “TIMED RUN REMAINING”. From here on it behaves as a timed run (p. 15): hold ▲ for the run time so far, ▲+▼ to pause and resume, and at the end the display shows “TIMED RUN REMAINING” and “0”.

Cancelling a timed run or run delay

1. On a pump that is not running, press ∗ ▲ ▼ ∗.
2. Press ∗ until “SET TIMED RUN” and “min” flash on the display.
3. Press ▼ until the time shows 0.
4. If needed, press ∗ to move to “SET RUN DELAY” and set it to 0 in the same way.
5. Press ▲+▼ to leave the setup functions. The pump is ready to run.



SET TIMED RUN set to 0: the timed run is cancelled.

“CLr” does not cancel these settings: it clears only the accumulated run time.

Verifying the flow rate

The sample volume is flow rate times time, so the result is only as good as the flow rate. The pump does not display the flow: you set it while reading a flowmeter, with a representative sample medium in line — a medium of the same type as the one you will sample with — because its resistance changes the flow.

Before you verify

- Charge the battery completely (see Commissioning (p. 12)) and let the pump run for 5 minutes.
- If the pump has come from a much colder or warmer place, let it adjust to the temperature first.
- Verify the flow through the complete sampling train before *and* after each sample.
- Prepare the flowmeter as its own instructions describe.
- Choose the procedure for your flow range and sample medium:

Flow range	Procedure	You need
1–5 L/min	Filters and other high-flow media, 1 to 5 L/min (p. 17)	Flowmeter, representative sample medium, tubing
5–500 mL/min	One sorbent tube, 5 to 500 mL/min (p. 18)	Flowmeter, All-in-One adjustable tube holder (Low Flow Kit 210-500), representative sorbent tube
5–500 mL/min	Two to four sorbent tubes, 5 to 500 mL/min (p. 19)	Flowmeter, Constant Pressure Controller (CPC), Dual, Tri or Quad Adjustable Low Flow Tube Holder, representative sorbent tubes

The low flow holders and the CPC come with their own operating instructions, which describe them in more detail. Order numbers are in Sampling accessories (p. 28).

Filters and other high-flow media, 1 to 5 L/min



Figure 3. Flow rate verification train, 1 to 5 L/min (filter cassette shown).
1 Flowmeter (chek-mate shown) · **2** Flowmeter outlet (suction port) · **3** Flexible tubing · **4** Representative sample medium · **5** Tygon tubing, 1/4 in. ID · **6** Pump inlet

1. Set up the verification train as in Figure 3: connect the flowmeter outlet (suction port) to the inlet of the representative sample medium with flexible tubing, and the outlet of the medium to the pump inlet with 1/4 in. Tygon tubing.
2. On a pump that is not running, press ∗ ▲ ▼ ∗, then ∗ until “ADJ” and “FLOW” flash.
3. Press ▲ or ▼ until the flowmeter shows the flow your method specifies, within ±5 %. Then press ▲+▼ to accept the flow and leave the setup functions.
4. Take at least three readings on the flowmeter and record their average as the pre-sample flow rate, as OSHA and NIOSH methods require.

5. Disconnect the flowmeter and the tubing from the representative medium, and continue with Sampling (p. 20).

One sorbent tube, 5 to 500 mL/min

For one tube, the All-in-One adjustable tube holder sets the low flow. You first set the pump to a fixed flow of 1.5 L/min, then adjust the flow through the tube with the screw on the holder. The holder has a built-in constant pressure controller with two small inlet holes on its underside; inspect them now and then, and if they are blocked, clean them with a small pick and blow the particles away with a puff of air.

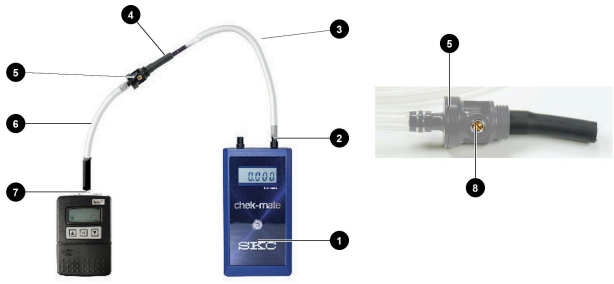


Figure 4. Flow rate verification train for one sorbent tube; right: the All-in-One holder.
1 Flowmeter · **2** Flowmeter outlet (suction port) · **3** Flexible tubing · **4** Representative sorbent tube in the rubber sleeve · **5** All-in-One adjustable tube holder · **6** Tygon tubing of the holder · **7** Pump inlet · **8** Flow adjust screw

Setting the pump flow

1. Connect the flowmeter outlet (suction port) to the pump inlet with flexible tubing.
2. On a pump that is not running, press ∗ ▲ ▼ ∗, then ∗ until “ADJ” and “FLOW” flash.
3. Press ▲ or ▼ until the flowmeter shows 1.5 L/min, within ±5 %. Press ▲+▼ to accept the flow and leave the setup functions.
4. Take at least three readings and record their average.
5. Remove the tubing from the pump inlet.

Setting the flow through the tube

1. Connect the Tygon tubing of the All-in-One holder to the pump inlet.
2. Break both tips off a representative sorbent tube and push it into the rubber sleeve of the holder, with the arrow on the tube pointing towards the pump. The tube must sit tightly in the sleeve so that no air leaks in; the holder comes with two sleeves of different inside diameters.
3. Connect the open end of the tube to the flowmeter outlet (suction port) with flexible tubing.

NOTICE

Screwing the flow adjust screw fully shut, or forcing it with a screwdriver that does not fit, can damage the valve and its seat. Never screw the flow adjust screw fully shut, and use only a screwdriver that fits the screw.

4. Start the pump with ▲+▼. With a small flat-blade screwdriver, turn the flow adjust screw on the holder anticlockwise to increase the flow or clockwise to decrease it, until the flowmeter shows the flow your method specifies. Do not change the flow on the pump.
5. Disconnect the flowmeter and its tubing from the tube.



The flow adjust screw on the All-in-One tube holder.

> **Note**
> If the pump goes into flow fault shortly after you connect the holder, the needle valve in the holder may be closed: turn the flow adjust screw slightly anticlockwise. If the fault continues, check that the two small inlet holes on the underside of the holder are not blocked.

Two to four sorbent tubes, 5 to 500 mL/min

With a Constant Pressure Controller (CPC) and a Dual, Tri or Quad Adjustable Low Flow Tube Holder you can take up to four tube samples at once, each at its own flow rate if needed. You first set the pump flow, then the flow through each tube with the brass screw beneath its port.

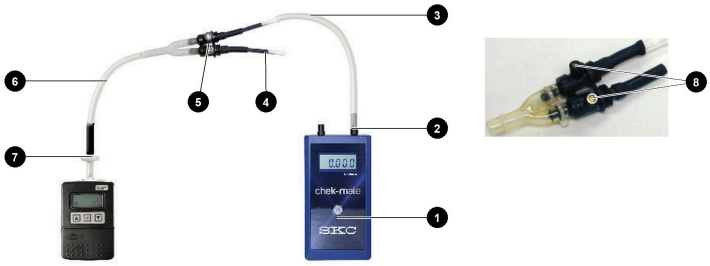


Figure 5. Flow rate verification train for several sorbent tubes (dual holder shown); right: the holder's flow adjust screws.
1 Flowmeter · **2** Flowmeter outlet (suction port) · **3** Flexible tubing · **4** Representative sorbent tubes · **5** Adjustable low flow tube holder · **6** Tubing · **7** Constant Pressure Controller (CPC) on the pump inlet · **8** Flow adjust screws

Setting the pump flow

1. Connect the flowmeter outlet (suction port) to the pump inlet with flexible tubing.
2. On a pump that is not running, press ∗ ▲ ▼ ∗, then ∗ until “ADJ” and “FLOW” flash.
3. Press ▲ or ▼ until the flowmeter shows at least 15 % more than the sum of the flows through all tubes, within ±5 %. Press ▲+▼ to accept the flow and leave the setup functions.
4. Take at least three readings and record their average.
5. Remove the tubing from the pump inlet and the flowmeter.

> **Note**
> When you sample with several tubes, do not set more than 500 mL/min through any one tube.

Setting the flow through each tube

1. Connect the tubing on the CPC outlet — the side without a label — to the pump inlet. Connect the tube holder to the CPC inlet, marked “To Sample”.

2. Break both tips off the representative sorbent tubes and push them into the rubber sleeves of the holder, with the arrow on each tube pointing towards the pump. Seal every unused port with an unopened tube, and label all tubes and ports.
3. Start the pump with ▲+▼. Connect the open end of the first active tube to the flowmeter outlet (suction port) with flexible tubing.

NOTICE

Screwing a flow adjust screw fully shut, or forcing it with a screwdriver that does not fit, can damage the valve and its seat. Never screw a flow adjust screw fully shut, and use only a screwdriver that fits the screw.

4. Loosen the brass flow adjust screw directly beneath that tube's port and turn it — anticlockwise to increase the flow, clockwise to decrease it — until the flowmeter shows the flow your method specifies. Do not change the flow on the pump. On Tri and Quad holders, first turn each anti-tamper cover aside to reach the screws.
5. Repeat steps 3 and 4 for each active tube.
6. Once every tube is set, check the flow through the representative tubes again before removing them; any correction should be small.



The flow adjust screws on the adjustable low flow tube holder, one beneath each port.

Sampling

The same steps apply to filters and to sorbent tubes: fit fresh media, start the pump, stop it after the time your method specifies, and verify the flow again. A sample can be started and stopped by hand, or by a programmed run delay and timed run.

Before you sample

- Charge the battery completely, and let the pump adjust to the ambient temperature if it has come from a much colder or warmer place.
- Verify the flow with a representative medium (see Verifying the flow rate (p. 17)). Verify it again after the sample.
- Outdoors, protect the pump from the weather.
- Do not run the pump from the charger in a hazardous location.

⚠ WARNING

Powering the pump from any device or battery pack other than P85004B or P85002B voids the UL listing for intrinsic safety. In a hazardous location, the pump can then ignite an explosive atmosphere. Power the pump only from one of these battery packs.

NOTICE

Without an in-line trap, vapours or liquid from an impinger can reach the pump. Impinger sampling without a suitable trap voids the warranty. Always put an in-line trap between an impinger and the pump.

Taking a sample

1. Replace the representative medium used for the flow verification with a fresh, unexposed one:
   - **Filter or other high-flow medium:** connect it to the pump inlet with the tubing.
   - **One sorbent tube:** push the opened tube into the rubber sleeve of the All-in-One holder so that it sits tightly, then screw the tube cover onto the holder until it is secure.
   - **Several sorbent tubes:** fit the opened tubes into the adjustable holder, then screw a tube cover onto the holder over each tube until secure.
2. Place the medium where you want to sample. For personal sampling, clip the medium or the tube holder to the worker's clothing in the breathing zone, and fix the pump to the worker's belt with its belt clip.
3. Press ▲+▼ to start the sample, and note the start time and any other information your method asks for. If a run delay is programmed and started, the pump starts by itself; if a timed run is programmed, it stops by itself. For a sample that starts and stops automatically, program both (see Run delay, then timed run (p. 16)).
4. Sample for the time your method specifies. The display shows the accumulated run time in minutes.
5. Press ▲+▼ to stop the sample; the pump goes into Hold. Note the stop time and any other information your method asks for.
   - To continue the same sample without clearing the run time, press ▲+▼ again.
   - To clear the run time, keep the pump in Hold, press ∗ ▲ ▼ ∗, and press ▲+▼ when “CLr” appears.
6. Cap the sample medium and send it, with blanks and the sampling information, to a laboratory for analysis.
7. Verify the flow after sampling: switch the pump on, set up the verification train again with a representative medium and take three readings. Record their average as the post-sample flow rate. Do not adjust the pump flow during this step.
8. Compare the pre- and post-sample flow rates. If they differ by more than ±5 %, note this in your sampling records.



Personal sampling: the pump on the belt, the sample medium clipped in the breathing zone.

Faults during sampling

The pump keeps the flow constant as the back pressure of the sample medium changes. If it cannot do so — because the medium is overloaded or the tubing is kinked or blocked — it goes into flow fault. A nearly empty battery leads to a low-battery fault.

Fault	What the pump does	What to do
Flow fault	The flow fault symbol flashes and the pump goes into Hold when the back pressure stays too high for the pump to compensate for longer than 15 seconds. The run time reached so far remains on the display and does not increase during the fault. Every 15 seconds the pump restarts and resumes sampling, up to 5 attempts; if the restriction is still there, it falls back into flow fault.	Find and remove the cause, then press ▲+▼: the symbol disappears and the pump restarts.
Low-battery fault	The battery symbol shows no bars and a flashing outline. The pump goes into Hold and switches off after 15 seconds. The accumulated run time is kept.	Charge the battery (see Commissioning (p. 12)).

Note

Not every blocked flow ends in a flow fault. If the battery is already low, the back pressure is very high, or the obstruction sits right at the pump inlet (a fingertip over the inlet, say, as opposed to kinked tubing), the pump may show the low-battery fault symbol instead. It then switches off without trying to restart.

Note

If the pump switched itself off during a flow fault, the flow fault symbol may still be shown when you switch it on again. To remove it, put the pump in Hold, press ∗ ▲ ▼ ∗ and press ▲+▼ when “CLr” appears.

CHAPTER 5

Maintenance

You may replace the battery pack and reset the pump yourself, using only original spare parts. Any repair beyond these tasks is service work (see Approved parts and repairs (p. 7)).

Replacing the battery pack

You need a Phillips screwdriver and the new battery pack: P85004B (high-power) or P85002B (standard).

⚠ WARNING

A pump fitted with a battery pack that is not approved loses its listing for use in hazardous locations. In a hazardous location, the pump can then ignite an explosive atmosphere. Read Hazardous locations (p. 6) and Battery pack (p. 6) before you change the battery. Fit only an approved battery pack.

NOTICE

If you remove the battery pack while the pump is running, the display data is lost. Put the pump in Hold before you disconnect the battery pack.

1. Put the pump in Hold: the blue LED must not flash.
2. Remove the two screws on the bottom of the battery pack housing.
3. Pull the battery pack housing away from the pump case.
4. Line up the pump case with the new battery pack: the SKC logo etched into the pack must face the same way as the display and keypad. Press the two parts together until they sit snugly. The pump switches on and shows the last mode used — usually Hold — and possibly the run time of the last sample.
5. Refit the two screws on the bottom of the battery pack housing and tighten them with the Phillips screwdriver, alternating between them.
6. Charge the new battery pack completely before use (see Commissioning (p. 12)).

Resetting the pump to factory settings

Reset the pump if it does not work as expected — for example after a battery change. You need the Phillips screwdriver.

1. Remove the battery pack (steps 1–3 of Replacing the battery pack (p. 23)).
2. Press and hold ✱ and ▼ together on the pump's keypad while you fit the pump onto the battery pack. The display shows the software version number (525X).

   Note
   Keep both keys pressed until the pump sits firmly on the battery pack.

3. Release ✱ and ▼. The display shows a number between 170 and 210.
4. Press ✱ once. The display shows a number between 70 and 90.
5. Press ▲+▼. The pump should now be in Hold, or start. If it does not, repeat steps 1 to 5.

6. Refit the two screws on the bottom of the battery pack housing and tighten them with the Phillips screwdriver, alternating between them.

CHAPTER 6

Troubleshooting

Problems and remedies

Problem	Remedy
The keypad does not respond.	1. Look at the lower right corner of the display. A flashing “L” means the keypad is locked: press ▼ 5 times quickly to unlock it. The “L” should disappear. 2. If no “L” is shown and the keys still do not respond, the pump needs repair: contact Analyt-MTC.
The setup functions do not open.	The keypad is locked, or the pump is running or counting down a run delay (blue LED flashing). Unlock the keypad, or press ▲+▼ to put the pump in Hold, then press ∗ ▲ ▼ ∗.
The pump stopped and the flow fault symbol flashes.	The flow is restricted: check for kinked or blocked tubing and an overloaded sample medium. Remove the cause and press ▲+▼. See Faults during sampling (p. 21).
The pump stopped with a flashing empty battery symbol.	Low-battery fault: charge the battery. A blockage close to the pump inlet can also cause this fault (see Faults during sampling (p. 21)).
The flow fault symbol is still shown after switching the pump on.	Put the pump in Hold, press ∗ ▲ ▼ ∗ and press ▲+▼ when “CLr” appears.
The pump goes into flow fault soon after the All-in-One holder is connected.	Open the needle valve: turn the flow adjust screw on the holder slightly anticlockwise. If the fault continues, check that the two small inlet holes on the underside of the holder are not blocked.
The pump does not work as expected, for example after a battery change.	Reset the pump — see Resetting the pump to factory settings (p. 23).
The pre- and post-sample flow rates differ by more than ±5 %.	Record the difference with the sample, as described under Sampling (p. 20).

If none of these remedies helps, contact Analyt-MTC (see Service, warranty and contacts (p. 31)).

CHAPTER 7

Specifications

Flow and performance

Flow range	1000–5000 mL/min 5–500 mL/min with the optional low flow accessories
Compensation range	5000 mL/min at 10 in. H_2O back pressure 4000 mL/min at 20 in. H_2O 2000 mL/min at 50 in. H_2O
Flow compensation	Isothermal closed-loop flow sensor
Flow accuracy	±5 % of the set point, after the flow has been verified
Timing accuracy	1 min per month at 25 °C
Timed run, run delay, continuous run	Display range 1–9999 minutes (6.8 days). Beyond 6.8 days the timer display rolls over.
Flow fault	If the pump cannot compensate for more than 15 seconds because of excessive back pressure, it stops, shows the flow fault symbol and holds the run time display. It tries to restart every 15 seconds, up to 5 times.

Typical back pressure of sampling media

Compare these values with the compensation range above to judge whether the pump suits a medium at a given flow. Values in inches of water.

Filter, pore size	1.0	1.5	2.0	2.5	3.0	3.5	4.0	5.0 L/min
25 mm MCE, 0.8 µm	7.2	9.5	12.8	16.1	19.7	22.9	29.9	32.7
25 mm MCE, 0.45 µm	13.7	20.7	28.0	35.1	42.7	49.8	57.0	71.5
37 mm MCE, 0.8 µm	2.6	3.9	5.5	6.9	8.4	9.9	11.5	14.7
37 mm PVC, 5.0 µm	1.0	1.6	2.2	2.9	3.6	4.4	5.1	6.9
37 mm polycarbonate, 0.45 µm	3.5	5.3	7.1	8.9	11.0	13.1	14.8	18.9
25 mm MCE, 0.45 µm, microvacuum	7.8	11.8	15.8	20.0	24.3	28.7	32.4	40.9
37 mm PTFE, 1.0 µm	6.3	9.7	12.8	16.3	19.6	23.2	26.2	34.1

Power

Battery pack, high-power	Li-Ion, 4 cells, rechargeable, 7.2 V, 6.9 Ah, 49.7 Wh; Cat. No. P85004B for UL Listed pumps
Battery pack, standard	Li-Ion, 2 cells, rechargeable, 7.2 V, 3.45 Ah, 24.85 Wh; Cat. No. P85002B for UL Listed pumps
Typical run time*	High-power pack: 40 h at 2 L/min, 22 h at 5 L/min Standard pack: 20 h at 2 L/min, 11 h at 5 L/min For longer runs, the pump may be operated while connected to the charger.
Recharge time	Standard pack approx. 4 h; high-power pack approx. 8 h, with approved chargers. Varies with battery capacity and state of discharge.
Battery charge indicator	Symbol on the display for full, medium and low charge, imminent low-battery fault and low-battery fault
Low-battery fault	Pump switches off (sleep) after 15 seconds
Auto-off	After 5 minutes without use, pump not running

* Measured with new pumps and batteries and 37 mm, 0.8 µm MCE filters. Pump and battery performance may vary.

Operating conditions

Temperature	Operating 32–104 °F (0–40 °C) · charging 32–113 °F (0–45 °C) · storage −4 to 95 °F (−20 to 35 °C)
Humidity	Operating 0–95 %, non-condensing

Mechanical

Dimensions	With high-power pack: 5.5 × 3 × 2.3 in (14 × 7.6 × 5.8 cm) With standard pack: 4.3 × 3 × 2.3 in (10.9 × 7.6 × 5.8 cm)
Weight	With high-power pack: 21 oz (0.6 kg) With standard pack: 16 oz (0.45 kg)
Case	Anti-static plastic
Tubing	1/4 in inside diameter

Approvals

Intrinsic safety	cULus Listed for use in hazardous locations. Listed models carry the cULus Listed mark on their label and must be used with battery pack P85004B or P85002B to keep the listing (approved battery packs: see Hazardous locations (p. 6)).
RFI/EMI	CE marked for protection against radio-frequency and electromagnetic interference
Other	RoHS compliant

CHAPTER 8

Ordering information

Order from Analyt-MTC with the order codes.

Use only these original parts: the UL listing for intrinsic safety holds only with approved parts, and other parts void the warranty.

Pumps and kits

Contents	Order code high-power	Order code standard
Pump only, with battery pack and screwdriver set	210-5001	210-5002
Single high flow pump kit	210-5001K	210-5002K
5-pack high flow pump kit	210-5001K5	210-5002K5
Single dust sampling kit	210-5001KP	210-5002KP
5-pack dust sampling kit	210-5001K5P	210-5002K5P
Single vapour sampling kit	210-5001KV	210-5002KV
5-pack vapour sampling kit	210-5001K5V	210-5002K5V
Single combined sampling kit	210-5001KC	210-5002KC
5-pack combined sampling kit	210-5001K5C	210-5002K5C

Kits add chargers, tubing, carry case and their sampling accessories. Starter kits and 5-pack high/low flow kits: ask Analyt-MTC.

Flowmeters

Description	Order code
Medium Flow chek-mate Flowmeter with CalChek, 0.50–5 L/min; includes 9 V alkaline battery and a calibration certificate traceable to UK standards	375-0550
The same flowmeter with a calibration certificate traceable to NIST or ISO standards	NIST: Ask Analyt-MTC ISO: 375-0550S

Chargers

Description	Order code
Single Charging Kit, for pumps with Li-Ion battery packs only; 100–240 V AC, 50/60 Hz; charging unit, power supply and interchangeable wall plugs	223-241
Take Charge 5 five-station Li-Ion battery charger, for Li-Ion AirChek XR5000 and Leland Legacy pumps; charging unit and power cable, 100–240 V AC	223-441

Sampling accessories

Description	Order code
Low Flow Kit, 5–500 mL/min, for single-tube sampling with all AirChek XR5000 models: All-in-One adjustable tube holder and Type A protective tube cover	210-500

Description	Order code
Constant Pressure Controller (CPC), for multiple-tube sampling at 5–500 mL/min; use with an adjustable low flow tube holder	224-26-CPC
ADJUSTABLE LOW FLOW TUBE HOLDERS, 5–500 ML/MIN — USE WITH THE CPC; TUBE COVERS ORDERED SEPARATELY	
Dual	224-26-02
Tri	224-26-03
Quad	224-26-04
PROTECTIVE SAMPLE TUBE COVERS, FOR THE ADJUSTABLE TUBE HOLDERS	
Type A, for tubes 6 mm outside diameter (OD) × 70 mm long (included in Low Flow Kit 210-500)	224-29A
Type B, for tubes 8 mm OD × 110 mm long	224-29B
Type C, for tubes 10 mm OD × 150 mm long	224-29C
Type D, for tubes 10 mm OD × 220 mm long	224-29D



Left: adjustable low flow tube holders, single to quad. Right: sample tube protective covers, types A to D.

Protective pouches and carry cases

Description	Order code
Red, high-visibility, for the high-power model	224-96A
Black, noise-reducing, for the high-power model	224-96C
Black, for the high-power model	224-88
Black, noise-reducing, for the standard model	224-913
Carry case for 1 pump	224-98
Carry case for 5 pumps	224-97B



Red protective pouch with belt.

Spare parts

Description	Order code
Battery pack, high-power, Li-Ion, 4 cells*	P85004B
Battery pack, standard, Li-Ion, 2 cells*	P85002B
Belt clip	P20139
Filter and O-ring, pack of 3	P20140
Inlet/filter housing	P20142
Inlet filters, pack of 50	P40011
Battery jack cover	P20419

* Li-Ion batteries are subject to special shipping regulations (see Shipping lithium-ion batteries (p. 31)).

⚠ WARNING

A repaired or rebuilt battery pack voids the warranty and the UL listing for intrinsic safety. In a hazardous location, the pump can then ignite an explosive atmosphere. Replace a worn pack with a new one.

CHAPTER 9

Service, warranty and contacts

Analyt-MTC is your contact for everything concerning the AirChek XR5000: technical questions, spare parts and accessories, repairs and warranty claims. Any work beyond the tasks in Maintenance (p. 23) is service work. To keep the warranty and the UL listing for intrinsic safety, repairs must be done by the manufacturer or a repair centre it has authorised; Analyt-MTC arranges this for you.

Contact

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Before you contact Analyt-MTC

Have the following at hand so Analyt-MTC can help you quickly:

- the catalogue number of the pump (210-5001 or 210-5002) and the catalogue number on the battery pack label;
- what happened, what the display showed, and which sample medium and flow rate you used.

Returning a pump

Before you send a pump for repair or under warranty, ask Analyt-MTC how to return it and what to include. The pump contains a lithium-ion battery, so the shipping rules below apply.

Shipping lithium-ion batteries

The pump's Li-Ion battery packs have passed every test of the UN Manual of Tests and Criteria, Part III, subsection 38.3, and are rated below 100 Wh. Pumps and battery packs are nevertheless subject to the special shipping regulations for lithium batteries (UN 3480 and UN 3481). Ask your carrier before you ship them.

Warranty

The warranty terms of Analyt-MTC apply. Make warranty claims to Analyt-MTC. Not following the warnings and cautions in this manual voids the warranty.

Disposal

Do not dispose of the pump with household waste. Dispose of it as electrical and electronic equipment under local regulations (WEEE). Remove batteries first where fitted and dispose of them separately.

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AMTC-MN-0039 · Rev. 2 · 2026-10

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