ANALYT MESSTECHNIK




OPERATING MANUAL

# SKC Pocket Pump TOUCH Sample Pump

Charging, set-up, flow rate verification and sampling with the Pocket Pump TOUCH low-flow personal sampling pump, 20 to 500 mL/min, with maintenance, troubleshooting and ordering information.

AMTC-MN-0033

# About this manual

The SKC Pocket Pump TOUCH is a pocket-sized personal air sampling pump for low flows from 20 to 500 mL/min, built for gas and vapour sampling on sorbent tubes and in sample bags. It runs in constant flow or, for multi-tube sampling, in constant pressure, and is operated from a touch screen. This manual takes you from unpacking to a finished sample: charging the battery, setting up the pump, setting and verifying the flow rate, running manual, timed and preset samples, and reading the sample history. Later chapters cover the maintenance you may do yourself, troubleshooting, the 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 pump's intrinsic-safety ratings, listed under Certifications (p. 32), apply only under the conditions set out there. To start sampling quickly, follow Commissioning (p. 12), Setting and verifying the flow rate (p. 16) and Sampling (p. 22) in that order.

The manual applies to the Pocket Pump TOUCH, Cat. No. 220-1000TC, and to every kit built around it (Cat. No. 220-1000TC-…). Analyt-MTC supplies, services and supports the pump; for questions, repairs and spare parts see Service, warranty and contacts (p. 35).

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: **Sample**.
- A menu path such as **Sample** › **Flow** › **Run** means that you open each entry in turn.

## Abbreviations

| Abbreviation | Meaning |
|---|---|
| **LED** | Light-emitting diode |
| **RH** | Relative humidity |
| **UL** | Underwriters Laboratories |
| **USB** | Universal serial bus |

## How this manual marks information

**WARNING**

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

**Note**

Information that helps understanding; never a hazard.

Every menu path starts from the Main Menu. The screen pictures in this manual show US units (°F, inHg); choose your units as described in Display units (p. 15).

## Document information

| | |
|---|---|
| Title | SKC Pocket Pump TOUCH Sample Pump — Operating manual |
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| Rev. | Date | Change |
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| 2 | October 2026 | Quality programme: new document type, number and identity pages. |
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CHAPTER 1

# Safety

Read this chapter before you use the pump for the first time. The intrinsic-safety rating of the Pocket Pump TOUCH applies when the pump runs on its original battery pack, with approved components only. The rules in this chapter protect that rating, the people working with the pump, or both.

## Intended use

The Pocket Pump TOUCH is a sample pump for flows from 20 to 500 mL/min. It draws air through one or more sorbent tubes or into a sample bag, in constant flow mode or, with several tubes, in constant pressure mode. Use the pump only as this manual describes, on its original battery pack and with approved components only.

## Hazardous locations

The pump, Cat. No. 220-1000TC, is rated intrinsically safe (Ex ia) for hazardous locations when it runs on battery pack P76303 or P76303A. The ratings are listed under Certifications (p. 32).

**WARNING**

Charging the pump, running it from a charger, or removing or replacing its battery pack in a hazardous location can ignite an explosive atmosphere. A component replaced by a non-approved part, or a charging input above 5.5 V, can impair intrinsic safety. In a hazardous location, the pump can then ignite an explosive atmosphere. Remove, replace and charge the battery pack only in an area known to be non-hazardous. Never run the pump from a charger in a hazardous location. Never replace a component with a non-approved part. Charge only with the charging cable of the Single USB Charger, Cat. No. 220-300A. The power source on the USB end (mains adapter, USB hub, PC or power pack) is not part of the intrinsic-safety approval: use it only in an area known to be non-hazardous. Never let the charging input exceed 5.5 V (maximum charge input voltage $U_m$ = 5.5 V, an intrinsic-safety parameter).

## Battery pack

The pump runs on a rechargeable lithium-ion (Li-Ion) battery pack, Cat. No. P76303 or P76303A (replacement packs are supplied as P76303A). Treat it like any Li-Ion battery: it stores enough energy to start a fire if it is damaged or overheated.

**WARNING**

A damaged or overheated battery pack can catch fire or explode, and so can a battery other than P76303 or P76303A. The fire or explosion can cause burns. Do not open, disassemble, short-circuit or crush the battery pack, heat it above 212 °F (100 °C) or put it in a fire. Tampering with the pack in any of these ways also voids the warranty. Replace the battery pack only with battery pack P76303 or P76303A. Do not charge the pack at more than 4.2 V DC or 400 mA, the values it is approved for. Dispose of used battery packs promptly, following local and national recycling or waste regulations.

**Note**

Switch the pump off before you remove the battery pack.

## Approved parts and accessories

Power the pump only from battery pack P76303 or P76303A, and charge it only with the charging cable of the Single USB Charger, Cat. No. 220-300A. Use only the approved spare parts and accessories listed in Ordering information (p. 33).

**⚠ WARNING**

An unapproved battery or charging cable can damage the pump and voids the warranty. A non-approved, repaired or rebuilt battery pack also voids the warranty and the UL listing for intrinsic safety. In a hazardous location, the pump can then ignite an explosive atmosphere. Use only battery pack P76303 or P76303A and the charging cable of the Single USB Charger, Cat. No. 220-300A.

## Handling

- Outdoors, protect the pump from rain and from long periods of direct sunlight.
- When you bring the pump from a very cold or very warm place, let it adjust to the new temperature before use.
- Where metallic dust is present, check the magnetic charging contact on the back of the pump and the magnetic connector of the charging cable, and clean them with a small brush and canned or compressed air (see Cleaning the charging contacts (p. 29)).

## What you may service yourself

You may replace the external parts of the pump: the inlet filter, the battery pack, the screen protector and the belt clip. Everything else — and in particular anything inside the pumping compartment — is service work, which must be done by the manufacturer's authorised service to keep the pump's performance and its intrinsic-safety rating. Contact Analyt-MTC to arrange it.

**⚠ WARNING**

Opening the pumping compartment can compromise the intrinsic-safety rating, and it voids the warranty. In a hazardous location, the pump can then ignite an explosive atmosphere. Do not open the pumping compartment. Leave service work inside it to the manufacturer's authorised service.

The warranty also lapses if the warnings and cautions in this manual are not followed.

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. 35)). The pump on its own, Cat. No. 220-1000TC, comes without a charger; order one separately before you can charge it (see Charging and data accessories (p. 33)). All chargers work on 100–240 V mains; the kits listed here are supplied with US-type mains plugs.

| Order code | Contents |
|---|---|
| 220-1000TC | Pump with Li-Ion battery pack and 1.5 mm hex key (screwdriver); charger not included |
| Ask Analyt-MTC | Pump with charger: the pump as above and a Single USB Charger (charging cable and mains adapter, US plug); 100–240 V |
| Ask Analyt-MTC | Starter kit: the pump and a Single USB Charger as above, 3 ft (0.9 m) Tygon tubing, collar clip with cable tie; 100–240 V |
| Ask Analyt-MTC | Single pump kit: the pump and a Single USB Charger as above, a Type A single tube holder and a soft-sided nylon carry case (for a hard-sided case, ask Analyt-MTC); 100–240 V |
| Ask Analyt-MTC | 5-pack kit: 5 pumps, 5 Single USB Chargers (charging cables and mains adapters, US plug), 5 Type A single tube holders, in a hard-sided case; 100–240 V |
| Ask Analyt-MTC | 5-pack deluxe kit: 5 pumps, 5 Type A single tube holders, 5 single charging cables without mains adapters, a 5-port USB charging hub with power cable (US plug) and a DataTrac Pro USB Bluetooth Adapter, in a hard-sided case; 100–240 V |

The pump needs tubing of 1/4 in inside diameter. To connect it to a PC by Bluetooth you need the USB Bluetooth Adapter, Cat. No. 877-94. Pumps and battery packs contain Li-Ion batteries and are subject to special shipping regulations (see Shipping lithium-ion batteries (p. 35)).

## Parts of the pump




**Figure 1.** Pump parts. Left: front; right: back.
**1** On/off button (also locks and unlocks the screen) · **2** Inlet · **3** Exhaust, with cap · **4** Status LEDs · **5** Touch screen · **6** Battery pack · **7** Magnetic charging contact with LED · **8** Belt clip · **9** Battery screws (2)

## Switching on and off

The on/off button is on the top of the pump (1 in Figure 1 (p. 8)). Press it to switch on: the screen lights and the Flow screen appears. Press it on a pump that is not running to switch off: the screen goes dark. A pump left without use switches itself off after 5 minutes.

On a *running* pump the button does not switch off: it dims and locks the screen, and a second press restores and unlocks it (see Screen: Dim, Auto Lock and Secure Lock (p. 15)).

## The display

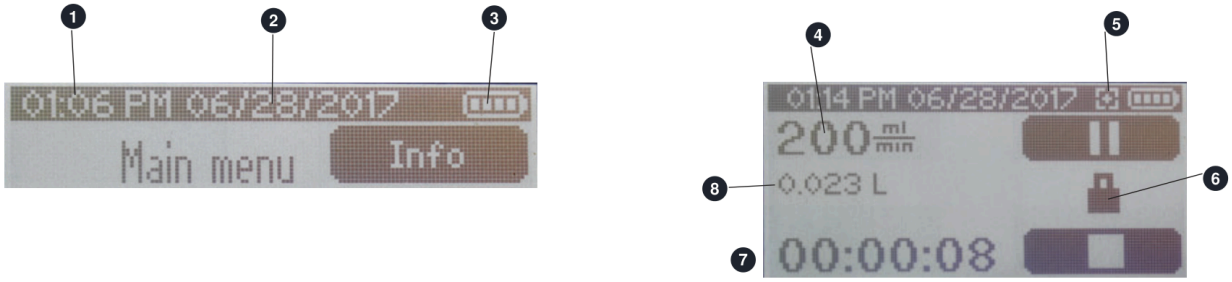



**Figure 2.** Left: top line, shown on every screen. Right: display of a running pump.
**1** Time (12 or 24 h) · **2** Date (3 formats) · **3** Battery status · **4** Flow rate in mL/min (constant flow) or back-pressure setting in in. $H_2O$ (constant pressure) · **5** Flow adjustment applied · **6** Lock symbol: screen locked against accidental touches or tampering · **7** Elapsed run time · **8** Scrolling line: accumulated sample volume (L), ambient temperature (°F or °C), atmospheric pressure (mbar, inHg or mmHg) and back pressure (in. $H_2O$)

The up/down arrows make the scrolling line (8) move faster.

## Using the touch screen

The screen is capacitive and divided into eight touch areas: four on-screen buttons whose function changes with the screen (1–4 in Figure 3), and four navigation buttons below them (5–8) that are always the same. Touch the buttons gently with a fingertip.

The pump is operated through menus. When you switch it on, it shows the Flow screen, the fastest way to flow rate verification and sampling. The Menu button takes you to the Main Menu, from which every function can be reached.




**Figure 3.** Touch areas.
**1–4** On-screen buttons one to four · **5** Back · **6** Up · **7** Down · **8** Menu



The Flow screen, shown when the pump is switched on.

| | Button | What it does |
|---|---|---|
| | **Back** | Returns to the previous screen. |
| | **Up/down** | Increases or decreases the selected value, or moves up or down a list, range or display. Touch and hold to change a flow or pressure setting faster. |
| | **Menu** | Goes to the Main Menu. |
| | **Check mark** | Saves the selected value or setting. |
| | **Left/right** | Moves along the scale when you set the flow or pressure (coarse setting), or from one field to the next when you enter a value. |
| | **Adjust Flow** | Opens the flow adjustment used for flow rate verification: a scale from −10 to +10, set with the up/down arrows. |
| | **Run** | Starts the pump for sampling, or resumes a paused sample. |
| | **Pause** | Pauses a running pump. Elapsed time and volume stop accumulating and continue when you touch **Run**. |
| | **Stop** | Stops the pump and resets the elapsed time and volume on the screen to zero. The run data is kept in the Sample Summary and the history. |

## Menu overview

The Main Menu has three buttons. Their submenus contain:

| Main Menu | Submenu | Contents |
|---|---|---|
| Device<br>**Device** | History | List of sample runs with their summaries |
| | Clock | Time, date, clock display (12/24 h), date display format |
| | Units | Temperature unit, atmospheric pressure unit |
| | Screen | Dim, Secure Lock, Auto Lock |
| Info<br>**Info** | *no submenu* | Firmware version, lifetime run time and volume, pump serial number, date of manufacture |
| Sample<br>**Sample** | Flow | Constant flow: set flow, adjust flow, set duration (timer), **Run** |
| | Presets | Presets P1 to P4, created in DataTrac Pro and uploaded to the pump |
| | Advanced | Constant pressure: set pressure, set duration (timer), **Run** |

## Status LEDs

Status LEDs in the two top corners, below the inlet and behind the magnetic charging contact show the pump's state at a glance. For the LED patterns while charging, see Reading the charge status (p. 13).

| LEDs | Pump state |
|---|---|
| Corner and inlet LEDs flashing green | Pump running |

| LEDs | Pump state |
|---|---|
| Corner and inlet LEDs flashing red | Flow fault (see Flow faults (p. 25)) |
| Inlet LED flashing yellow-orange, corner LEDs blinking green | Constant pressure mode: the pump is working towards the set pressure. The inlet LED turns steady green when the pressure is reached. |

## Battery status

The battery symbol at the top of every screen has four bars that disappear as the battery discharges.

| Bars | Charge remaining |
|---|---|
|  4 | approx. 75–100 % |
|  3 | approx. 50–75 % |
|  2 | approx. 25–50 % |
|  1 | approx. 3–25 % |
|  1, flashing | less than 3 %: a flow fault is imminent. Charge the pump. |

CHAPTER 3

# Commissioning

Charge the battery pack completely before you use the pump for the first time, and again before each flow rate verification and sample. A full charge takes about 10 hours; 80 % is reached after about 4.5 hours. The pump can also run while connected to a charger, which extends the run time.

**⚠ WARNING**

Charging the pump, or running it from a charger, in a hazardous location can ignite an explosive atmosphere. Never charge the pump, or run it from a charger, in a hazardous location. Charge only with the approved charging cable, the one of the Single USB Charger, Cat. No. 220-300A (see Approved parts and accessories (p. 7)).

## Connecting the charger

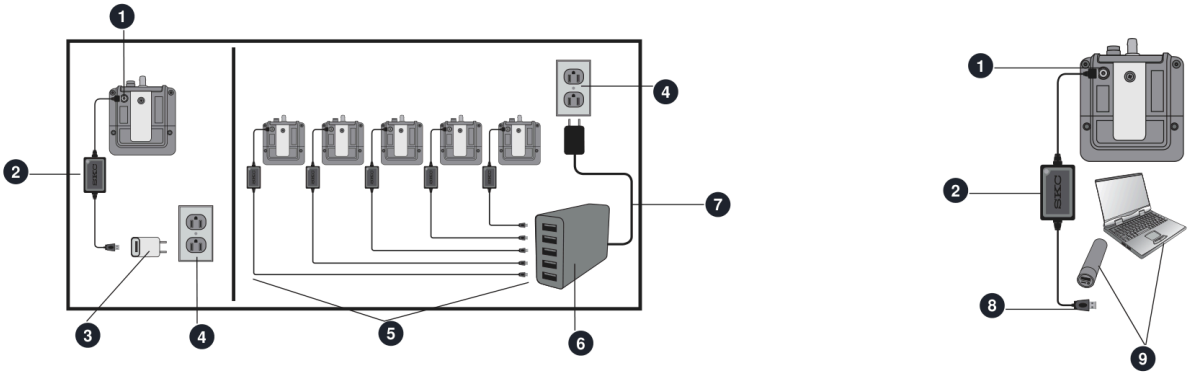



**Figure 4.** Charging from the mains: one pump with the single charger (left) or up to five pumps on the 5-port USB hub (centre). Charging on the move: from a portable power pack or a PC (right).
**1** Magnetic charging contact · **2** Charging cable · **3** Mains adapter (wall plug) · **4** Mains outlet, 100–240 V · **5** Up to 5 charging cables · **6** 5-port USB hub · **7** Power cable · **8** USB connector · **9** Portable power pack or PC

1. Plug the USB connector of the approved charging cable into a USB port of one of these. The power source is not covered by the intrinsic-safety approval: use any of them only in an area known to be non-hazardous, with an output of no more than 5.5 V.
   - **the mains adapter** supplied with the Single USB Charger, plugged into a 100–240 V mains outlet;
   - **the 5-port USB hub** (Cat. No. 220-400) with its power cable, for up to five pumps, each on its own charging cable (Cat. No. P75739, supplied with the deluxe kit);
   - **a PC or laptop** (not supplied) that is fully charged or connected to the mains. USB ports and PC settings vary: if you charge this way, check halfway through that more bars have appeared on the battery symbol;
   - **a portable power pack** (not supplied) that is fully charged and suitable for the Pocket Pump TOUCH.

   The blue LED on the charging cable lights.
2. Hold the magnetic connector of the cable close to the charging contact on the back of the pump (7 in Figure 1 (p. 8)) until it engages: the LED behind the contact lights blue, and the status LEDs flash red in a repeating right – inlet – left pattern.

3. Leave the pump on charge until the battery is full (see the table below): about 10 hours, or about 4.5 hours to 80 %.

## Reading the charge status

| LEDs | Charge status |
|---|---|
| Charging-contact LED blue; inlet and corner LEDs flashing red in a repeating right – inlet – left pattern | Charging |
| Charging-contact LED blue; inlet LED steady green; corner LEDs blinking green; outline of the battery symbol flashing | Fully charged |

CHAPTER 4

# Operation

Operation runs from the settings you make once to the finished sample: set the clock, the display units and the screen settings; set and verify the flow rate before and after every sample; run the sample; then read its history on the pump or in DataTrac Pro.

Set the clock and the display units once, before the first sample, so that the sample history carries the right times and values. The screen settings decide how well a running sample is protected against accidental or deliberate changes.

All device settings are under **Device** in the Main Menu. The pump leaves the factory with these settings:

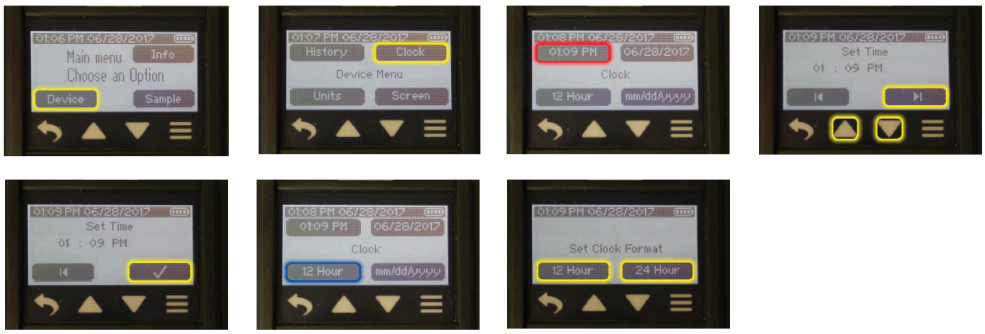
| | | | |
|---|---|---|---|
| Dim | On | Temperature unit | °F |
| Auto Lock | Off | Atmospheric pressure unit | inHg |
| Secure Lock | Off | Time format | 12 hour |
| | | Date format | mm/dd/yyyy |

## Clock

### Time

1. Touch **Device** › **Clock**, then the time shown. The hour digits flash.
2. Set the hour with the up/down arrows.
3. Touch the right arrow to move to the minutes, and set them.
4. Touch the right arrow again to move to AM/PM, and toggle it with the up/down arrows.
5. Touch the check mark. The pump returns to the Clock menu and shows the new time.

**12- or 24-hour clock:** touch **Device** › **Clock** › **12 or 24 Hour**, then the format you want. The pump returns to the Clock menu.




Time. Top row: Device in the Main Menu, Clock in the Device menu, the time on the Clock menu, and setting the time. Bottom row: accepting the time, 12 or 24 Hour on the Clock menu, and its two choices.

### Date

1. Touch **Device** › **Clock** › **Date**. The month flashes.
2. Set the month with the up/down arrows.

3. Touch the right arrow to move to the day, and set it.
4. Move on to the year, and set it.
5. Touch the check mark. The pump returns to the Clock menu and shows the new date.

**Date format:** touch **Device** › **Clock** › **Date Display Format**, then one of the three formats. The pump returns to the Clock menu.




Date: the date on the Clock menu, setting the date and accepting it; then the date format on the Clock menu and its three choices.

## Display units

- **Temperature:** touch **Device** › **Units** › **Temp**, then **°F** or **°C**.
- **Atmospheric pressure:** touch **Device** › **Units** › **ATM**, then **mbar**, **inHg** or **mmHg**.




Display units: Units in the Device menu; Temp on the Units menu and its two choices; ATM on the Units menu and its three choices.

The pump returns to the Units menu after each choice.

> **Note**
> The pressure unit applies only to the atmospheric pressure, on the screen, in the Sample Summary and in the history. Back pressure (inlet pressure) is always shown in in. $H_2O$.

## Screen: Dim, Auto Lock and Secure Lock

The three screen settings are under **Device** › **Screen**. Touch a setting, then **On** or **Off**; the pump returns to the Screen menu. They can be combined.

| Setting | On | Off |
|---|---|---|
| **Dim** | Pressing the on/off button on a running pump dims and locks the screen. Together with Auto Lock, the screen dims and locks by itself when the pump starts. Saves battery power. | The backlight stays on for the whole sample. |

| Setting | On | Off |
|---|---|---|
| **Auto Lock** | The screen locks as soon as the pump starts a sample: a lock symbol and "Press top button to unlock" appear. Together with Dim, the screen also dims. Prevents accidental touches during a sample. | The screen stays active. You can still lock it at any time during a sample by pressing the on/off button. |
| **Secure Lock** | Pressing the on/off button on a running pump locks the screen, and only a four-digit passcode unlocks it. Together with Auto Lock, the screen locks when the pump starts. Protects a sample against tampering. | The screen unlocks without a passcode. |




Screen settings. Top row: Screen in the Device menu, Dim on the Screen menu, the Dim setting, and a dimmed, locked screen. Bottom row: Auto Lock on the Screen menu, the Auto Lock setting, and a locked screen.

**To unlock the screen** of a running pump, press the on/off button on top of the pump. With Secure Lock on, then enter the passcode on the screen keypad.

### Setting the Secure Lock passcode

1. Touch **Device › Screen › Secure Lock › On**.
2. Enter a four-digit passcode of your choice on the screen keypad. The digits show as ****.
3. Enter the same passcode again. When you enter the last digit, the passcode is saved and the pump returns to the Screen menu.




Secure Lock on the Screen menu, the Secure Lock setting, entering the passcode and confirming it.

To switch Secure Lock off, touch **Device › Screen › Secure Lock › Off** and enter the passcode.

> **Note**
> **Forgotten the passcode?** When the pump asks for it, touch **1**, **2**, **3**, then **Menu**, **Up**, **Down**, **Menu**. This master unlock overrides Secure Lock for this time; it does not switch it off.

## Setting and verifying the flow rate

The sample volume is flow rate times time, so the result is only as good as the flow rate. Verify the flow with a flowmeter before and after every sample, through the complete sampling train with a representative sample medium in line — the same type of sorbent tube you will sample with — because the medium's resistance changes the flow.

## Before you verify

**WARNING**

An unapproved battery or charging cable can damage the pump and voids the warranty. A non-approved, repaired or rebuilt battery pack also voids the warranty and the UL listing for intrinsic safety. In a hazardous location, the pump can then ignite an explosive atmosphere. Use only battery pack P76303 or P76303A and the charging cable of the Single USB Charger, Cat. No. 220-300A.

- Charge the battery completely (see Commissioning (p. 12)).
- If the pump has come from a much colder or warmer place, let it adjust to the room temperature first.
- Have a flowmeter ready, for example the Low Flow chek-mate Flowmeter, 20 to 500 mL/min (see Flowmeters and sampling accessories (p. 33)).
- Choose the procedure for your sampling task:

| Sampling task | Pump mode | You need |
|---|---|---|
| One sorbent tube, constant flow (p. 18) | Constant flow | 222 Series Low Flow Tube Holder (non-adjustable) |
| Several sorbent tubes, constant flow (p. 19) | Constant flow | 224 Series Adjustable Multiple-tube Low Flow Holder and Constant Pressure Controller (CPC) |
| Several sorbent tubes, constant pressure (p. 20) (advanced users) | Constant pressure | 224 Series Adjustable Multiple-tube Low Flow Holder |
| Before bag sampling (p. 22) | Constant flow | Tubing only |

For the multiple-tube holders and the CPC, see also their own operating instructions. The pump's flow adjustment screen is headed "Calibrate to …": it is the screen on which you match the pump to the flowmeter reading.

## Setting the flow rate

1. Touch **Sample** › **Flow**, then the flow rate display. The Set Flow screen appears.
2. Set the flow roughly with the left/right arrows, then fine-tune it with the up/down arrows (touch and hold an arrow to change the value faster).
3. Touch the check mark. The pump returns to the Flow menu and shows the new flow.

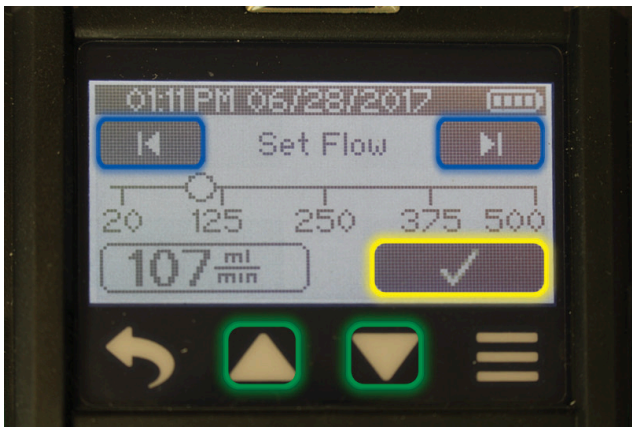
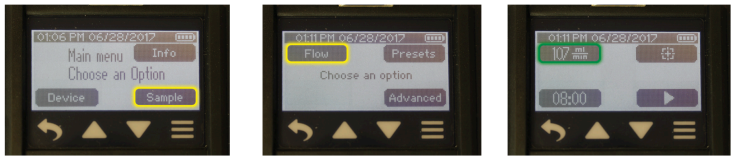



**Figure 5.** Set Flow screen.




Sample in the Main Menu, Flow in the Sample menu, and the flow rate display on the Flow menu.

## One sorbent tube, constant flow




**Figure 6.** Verification train for one sorbent tube.
**1** Pump inlet · **2** Tubing · **3** 222 Series Low Flow Tube Holder · **4** Representative sorbent tube (in the holder's cover) · **5** Tubing · **6** Flowmeter outlet · **7** Flowmeter (chek-mate shown)

1. Break the tips off a representative sorbent tube and push it into the rubber sleeve of the 222 Series Low Flow Tube Holder, with the arrow on the tube pointing towards the pump.
2. Connect the tube holder to the pump inlet with tubing.
3. Connect the open end of the tube to the flowmeter outlet with a length of flexible tubing (Figure 6).
4. Set the flow on the pump (see Setting the flow rate (p. 17)).
5. Touch **Sample** › **Flow**, then the Adjust Flow symbol. The pump starts and the flow adjustment screen appears (Figure 7).
6. Let the pump run for 5 minutes before you read the flowmeter.
7. Adjust with the up/down arrows until the flowmeter shows the required flow; the adjustment value (+3 in Figure 7) is shown on the screen. The flowmeter reading changes; the flow shown on the pump does not.
8. Touch the check mark. The pump returns to the Flow menu; the adjustment value appears next to the Adjust Flow symbol, and the flow shown is unchanged.

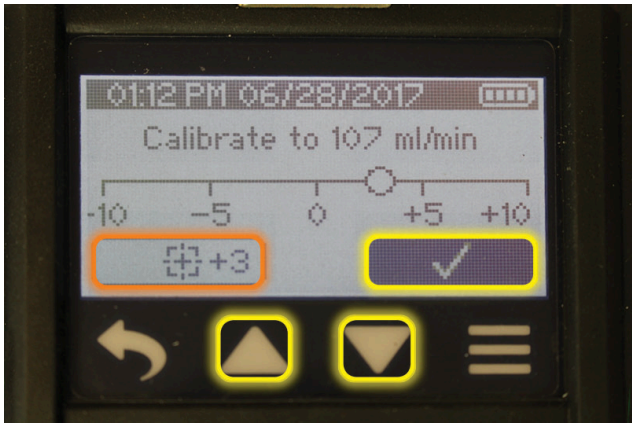
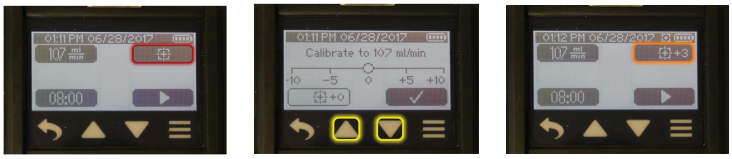



**Figure 7.** Flow adjustment screen, here with an adjustment of +3.

9. Disconnect the representative tube from the flowmeter and replace it with a freshly opened, unexposed tube as specified by your method. Continue with Sampling (p. 22).




The Adjust Flow symbol on the Flow menu, the flow adjustment screen before adjustment, and the Flow menu with the adjustment value (+3) next to the symbol.

## Several sorbent tubes, constant flow

The pump runs at a constant flow, a Constant Pressure Controller (CPC) holds the pressure in the holder steady, and the brass adjusting screw beneath each port of the multiple-tube holder sets the flow through that tube.

> **Note**
> The flows through all tubes together must not exceed 500 mL/min. Seal every unused holder port with an unopened sorbent tube, during verification and during sampling, to keep the ports clean.




**Figure 8.** Verification train for several tubes, constant flow (two tubes shown).
**1** Pump inlet · **2** Constant Pressure Controller (CPC) · **3** Tubing · **4** 224 Series Multiple-tube Low Flow Holder · **5** Representative sorbent tubes · **6** Tubing · **7** Flowmeter outlet · **8** Flowmeter

1. Set the pump flow (see Setting the flow rate (p. 17)) at least 15 % higher than the sum of the flows through all the tubes you will sample with, so that there is enough air for every tube.
2. Push the tubing from the outlet of the CPC (the unlabelled side) onto the pump inlet.
3. Push the tubing from the multiple-tube holder onto the CPC inlet, labelled "To Sample".
4. Break the tips off a representative sorbent tube and push it into the rubber sleeve of a holder port, with the arrow on the tube pointing towards the pump.
5. Repeat step 4 for each tube you will sample with, up to the number of ports.
6. Seal the unused ports with unopened tubes.
7. Label all tubes and ports.

8. With a small flat-blade screwdriver, turn the brass adjusting screw beneath the first port with an open tube anticlockwise. This opens the port.
9. Connect the open end of the tube in that port to the flowmeter outlet with flexible tubing (Figure 8).
10. Touch **Sample** › **Flow** › **Run** and let the pump run for 5 minutes.
11. Turn the adjusting screw of the port — anticlockwise to increase, clockwise to reduce the flow — until the flowmeter steadily shows the flow required for that tube. The flowmeter shows the flow through the tube; the flow shown on the pump does not change.
12. Touch **Stop**, then **Back** to return to the Flow menu.
13. Repeat steps 8 to 12 for each open tube in the holder.
14. Disconnect the flowmeter and replace the representative tubes with freshly opened, unexposed tubes as specified by your method, leaving the unused ports sealed. Continue with Sampling (p. 22).

## Several sorbent tubes, constant pressure

This procedure is for advanced users. Instead of a constant flow, the pump keeps the pressure in the holder constant, and the adjusting screws set the flow through each tube. You first measure the back pressure of the tubes at their flow, and set the pump pressure from it.

> **Note**
> In constant pressure mode the pump speeds up when it lacks resistance: without sample media, or with media whose pressure drop is below the set pressure. If it cannot reach the setting, it goes into flow fault. Run constant pressure mode only with sample media whose pressure drop is above the set pressure.

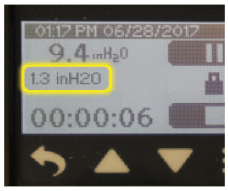



**Figure 9.** Verification train for several tubes, constant pressure (two tubes shown).
**1** Pump inlet · **2** Tubing · **3** 224 Series Multiple-tube Low Flow Holder · **4** Representative sorbent tubes · **5** Tubing · **6** Flowmeter outlet · **7** Flowmeter

### Finding the pressure setting

1. Connect the holder outlet to the pump inlet with tubing.
2. Break the tips off a representative sorbent tube and push it into the rubber sleeve of a holder port, with the arrow pointing towards the pump.
3. Open that port's adjusting screw anticlockwise with a small flat-blade screwdriver.
4. Label the tube and the port, and seal all unused ports with unopened tubes.
5. Set the flow your method specifies for that tube on the pump (see Setting the flow rate (p. 17)).

6. Touch **Run**.
7. Read the back pressure (in. $H_2O$) in the scrolling line of the display and note it; the up/down arrows make the line scroll faster.
8. Touch **Stop**, then **Back**.
9. Repeat steps 2 to 8 for each further tube. The flows through all tubes together must not exceed 500 mL/min.
10. Take the highest back pressure you noted, add 2 or 3 in. $H_2O$, round up to a whole number and add 1. The result is the pressure setting.




Back pressure in the scrolling line of a running pump.

### Setting the pressure and the tube flows

1. Touch **Sample** › **Advanced**, then the pressure display.
2. Set the pressure from step 10 roughly with the left/right arrows and fine-tune it with the up/down arrows (touch and hold to go faster).
3. Touch the check mark to return to the Advanced menu.
4. Connect the open end of the first tube to the flowmeter outlet with flexible tubing (Figure 9).
5. Touch **Run**. Until the set pressure is reached, the pressure value blinks and the inlet LED flashes yellow-orange; then the value stops blinking and the inlet LED turns green. This can take up to 90 seconds.
6. Let the pump run for 5 minutes before you read the flowmeter.
7. Turn the port's adjusting screw — clockwise to reduce, anticlockwise to increase — until the flowmeter shows the flow your method specifies. This is the flow through the tube.
8. Repeat steps 4 to 7 for every other open tube.
9. Disconnect the flowmeter and replace the representative tubes with freshly opened, unexposed tubes as specified by your method, leaving the unused ports sealed. Continue with Sampling (p. 22).

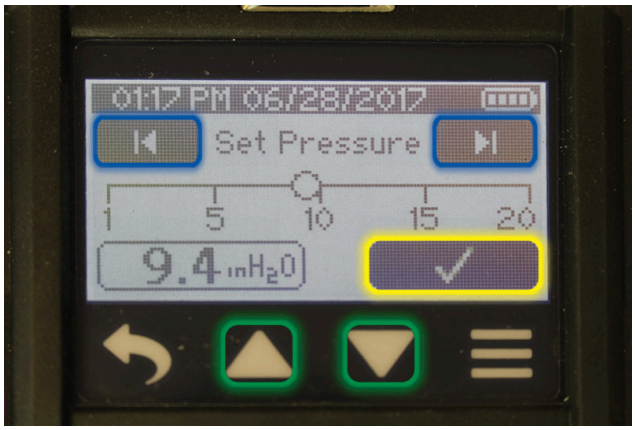



**Figure 10.** Set Pressure screen.




Advanced in the Sample menu, and the pressure display on the Advanced menu.

### Before bag sampling




**Figure 11.** Verification train for bag sampling.
**1** Pump inlet · **2** Tubing · **3** Flowmeter outlet · **4** Flowmeter

1. Set the flow on the pump (see Setting the flow rate (p. 17)).
2. Connect the pump inlet to the flowmeter outlet with flexible tubing (Figure 11).
3. Touch **Sample** › **Flow**, then the Adjust Flow symbol. The pump starts.
4. Let it run for 5 minutes before you read the flowmeter.
5. Adjust with the up/down arrows until the flowmeter shows the required flow; the adjustment value appears on the screen. The flowmeter reading changes; the flow shown on the pump does not.
6. Touch the check mark. The pump returns to the Flow menu and shows the adjustment value next to the Adjust Flow symbol.
7. Disconnect the flowmeter and tubing from the pump inlet, and continue with Connecting a sample bag (p. 23).

## Sampling

The pump runs a sample in one of three ways: manually, started and stopped by you; timed, where the pump stops itself after a set duration; or from a preset programmed in DataTrac Pro. Each can run in constant flow (**Flow** menu) or constant pressure (**Advanced** menu).

## Before you sample

**WARNING**

An unapproved battery or charging cable can damage the pump and voids the warranty. A non-approved, repaired or rebuilt battery pack also voids the warranty and the UL listing for intrinsic safety. In a hazardous location, the pump can then ignite an explosive atmosphere. Use only battery pack P76303 or P76303A and the charging cable of the Single USB Charger, Cat. No. 220-300A.

- Charge the battery completely.
- Set and verify the flow your method specifies (see Setting and verifying the flow rate (p. 16)). Verify it again after the sample.
- Remove the flowmeter and its tubing, and replace the representative medium used for verification with a freshly opened, unexposed medium as specified by your method.

### Connecting a sample bag

A bag is filled from the pump's exhaust (3 in Figure 1 (p. 8)). See also the operating instructions of the bag.

1. Unscrew the cap from the pump exhaust and screw in the supplied exhaust fitting, or the optional Quick-connect Bag Sampling Adapter (Cat. No. 220-200).
2. Connect the fitting or adapter to the bag fitting with polytetrafluoroethylene (PTFE) tubing.

**Note**

To release the tubing from the Quick-connect adapter after sampling, press the centre ring of the adapter with your fingertips while you pull the tubing away.

## Manual sample

1. Connect the pump to the sampling train.
2. Touch **Sample** › **Flow** › **Run** to sample at constant flow, or **Sample** › **Advanced** › **Run** to sample at constant pressure.
3. When the sampling period is over — for a bag, when the bag is properly filled — touch **Stop**. The Sample Summary appears and the accumulated data on the screen is reset.




Sample in the Main Menu, Flow or Advanced in the Sample menu, and Run on the Flow menu (constant flow) or the Advanced menu (constant pressure).

## Timed sample

1. Touch **Sample** › **Flow** or **Sample** › **Advanced**, then the duration display (shown as hh:mm). The Set Duration screen appears with the first hour digit flashing.
2. Set the digit with the up/down arrows, touch the right arrow to move to the next digit, and continue through the minutes.
3. Touch the check mark to accept the duration.
4. Connect the pump to the sampling train.

5. Touch **Run** in the Flow menu (constant flow) or the Advanced menu (constant pressure).



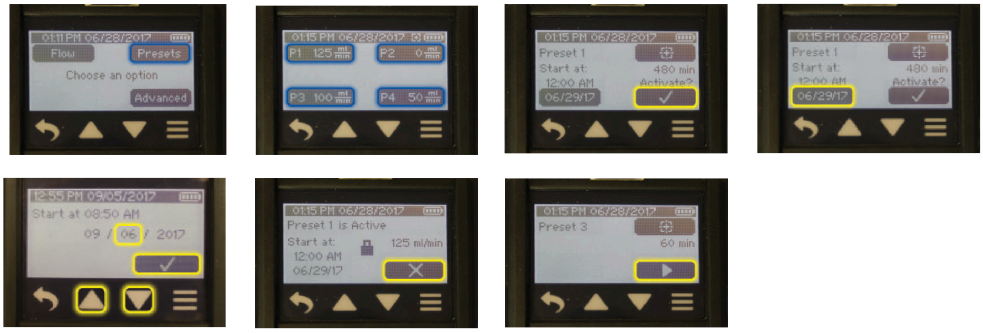

Set Duration screen: setting the hours and minutes (left) and accepting the duration (right).

When the duration has elapsed, the pump stops by itself, shows the Sample Summary and resets the accumulated data on the screen.

## Sample presets

Presets **P1** to **P4** are sample programs created in DataTrac Pro for Pocket Pump TOUCH on a PC and uploaded to the pump (see Using the pump with a PC (p. 27); the DataTrac Pro user manual describes how to create them). A preset may include a delayed start. On the pump you can change the start day of a preset, and verify the flow from the preset screen.

1. Connect the pump to the sampling train.
2. Touch **Sample** › **Presets**, then the preset you want.
3. Start the preset:
   - **With a delayed start:** touch the check mark to activate the preset. The pump shows a summary of the preset and an **X** button; touch **X** to cancel the activated preset.
   - **Without a delayed start:** touch **Run**.




Presets. Top row: Presets in the Sample menu, the presets P1 to P4, a preset with delayed start, and its start date. Bottom row: changing the start day, an activated preset with the X button, and a preset without delayed start.

**To change the start day** of a delayed-start preset, touch the start date on the preset screen, set the day with the up/down arrows and touch the check mark. Only a later day can be chosen.

When the preset has run, the pump stops by itself, shows the Sample Summary and resets the accumulated data on the screen.

> **Note**
> If the pump is switched off, or goes to sleep, after a sample, it shows the Sample Summary of that sample the next time it is switched on.

## While the pump is running

| To… | Do this |
|---|---|
| Pause the sample | Touch **Pause**. The accumulated data is kept, and **Pause** turns into **Run**. |
| Resume the sample | Touch **Run**. Sampling and data accumulation continue. |

| To… | Do this |
|---|---|
| End the sample | Touch **Stop**. The Sample Summary appears and the accumulated data on the screen is reset. |
| Lock (and dim) the screen | Press the on/off button on top of the pump. With Auto Lock on, the screen locks by itself when the pump starts; with Dim on, it also dims. A lock symbol and "Press top button to unlock" appear. |
| Unlock the screen | Press the on/off button. With Secure Lock on, then enter the passcode (see Screen: Dim, Auto Lock and Secure Lock (p. 15)). |




A running pump with Stop, the Sample Summary, a paused pump with Run, and the passcode prompt when Secure Lock is on.

### Flow faults

The pump keeps the flow within ±5 % of the setting as the load changes. If an overloaded sample medium or kinked tubing restricts the airflow so much that the back pressure exceeds what the pump can compensate, and this lasts for 3 to 10 seconds, the pump goes into flow fault:

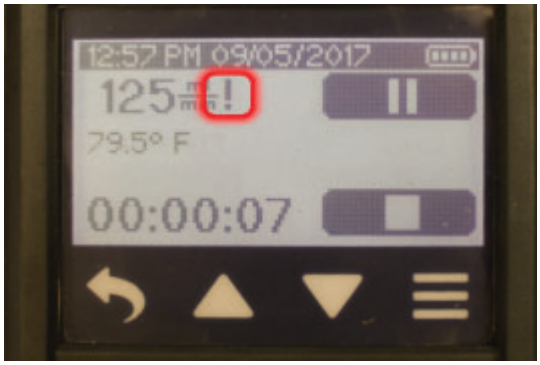
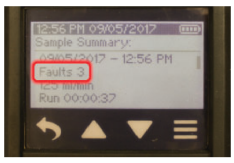



**Figure 12.** Flow fault: exclamation mark next to the flow rate.

1. The pump stops, the status LEDs flash red and the elapsed time stops.
2. An exclamation mark appears next to the flow rate.
3. After 20 seconds in fault, the pump tries to restart, up to 5 times. If full airflow returns, the sample continues. If it does not return within the 5 restarts (5 minutes), the pump ends the sample and shows the Sample Summary with the number of faults; the LEDs keep flashing red, less and less often.




Sample Summary after a flow fault, with the number of faults.

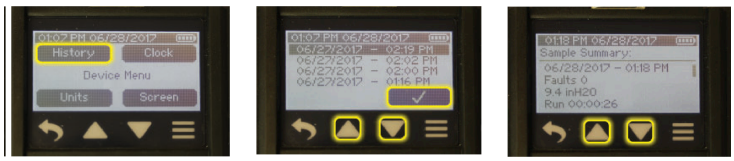
Touch any button on the screen to clear the fault. A flow fault is also cleared when the battery runs flat. Check the tubing for kinks and the sample medium for overloading or blockage before you sample again. A battery below 3 % (one flashing bar) also leads to a flow fault.

## History and pump information

### Sample history

1. Touch **Device** › **History**. The list of sample runs appears.
2. Scroll through the runs with the up/down arrows and touch the check mark to open one.

3. Scroll through the Sample Summary of that run with the up/down arrows.




History in the Device menu, the list of sample runs, and a Sample Summary.

> **Note**
> The pump shows the Sample Summaries of the last 16 runs. Its memory holds up to 4416 data entries — about 70 hours of one-minute averages or 360 hours of five-minute averages. To access the full data, upload it to DataTrac Pro on a PC.

## Pump information

Touch **Info** in the Main Menu to display the firmware version, the lifetime run time and volume, the serial number and the date of manufacture. Have this information at hand when you contact Analyt-MTC about the pump.

CHAPTER 5

# Communication

## Using the pump with a PC

The pump communicates with a PC by low-energy Bluetooth, through the DataTrac Pro USB Bluetooth Adapter (Cat. No. 877-94) and the DataTrac Pro software for Bluetooth-connected pumps (DataTrac Pro for short). With DataTrac Pro you upload the pump's data and create the sample presets P1 to P4. The software is a free download; ask Analyt-MTC for the DataTrac Pro for Bluetooth-connected Pumps user manual, which describes installation and operation in detail.

| DataTrac Pro system requirements | |
|---|---|
| Operating system | Microsoft Windows 7, 8, 8.1 or 10 |
| Software | DataTrac installer (included in the download) |
| Display resolution | At least 1024 × 768 |
| Port | USB 2.0 |

1. Check that the PC meets the system requirements.
2. Install the USB Bluetooth Adapter on the PC as described in the instructions supplied with it.
3. Download and install the DataTrac Pro installer as described in the adapter's instructions.
4. When installation is complete, DataTrac Pro starts by itself and searches for active Pocket Pump TOUCH pumps nearby.

CHAPTER 6

# Maintenance

You may replace the battery pack yourself and keep the touch screen and charging contacts clean. Use only the original spare parts listed in Spare parts (p. 34). All other service is done through Analyt-MTC (see What you may service yourself (p. 7)).

## Replacing the battery pack

You need the 1.5 mm hex key supplied with the pump and, for a replacement, a new battery pack P76303 (P76303A is also approved).

**WARNING**

Removing or replacing the battery pack in a hazardous location can ignite an explosive atmosphere. Remove and replace the battery pack only in an area known to be non-hazardous. Read the warnings in Hazardous locations (p. 6) and Battery pack (p. 6) first.

1. Switch the pump off: press the on/off button on top of the pump while it is not running. The screen goes dark.
2. Loosen the two safety screws on the back of the battery pack housing (9 in Figure 1 (p. 8)) with the hex key.
3. Hold the pump with the belt clip facing up and the inlet pointing left.
4. Grip the battery pack housing just above its top screw and just below its bottom screw, and lift it up against the belt clip.
5. As soon as the housing clears the pump case, pull it to the right, away from the case.
6. If you are fitting a new pack, dispose of the old one promptly according to local recycling or waste regulations, without taking it apart or putting it in a fire.
7. Align the battery pack housing with the bottom of the pump case.
8. Use the back of the housing to push the belt clip up until the pack lines up with the case and presses easily into place. The housing must sit flush with the case.
9. Tighten the two screws with the hex key, alternating between them.
10. Charge the battery pack completely before use (see Commissioning (p. 12)).

**Note**

When the battery pack is reconnected, the screen lights and then goes dark for about 20 seconds while the pump checks its firmware. The Main Menu appears when the check is complete.

## Cleaning the touch screen

**Note**

Do not clean the screen with alcohol.

Wipe fingerprints off the screen with a soft, clean, dust-free cloth.

## Cleaning the charging contacts

Where metallic dust is present, check the magnetic charging contact on the back of the pump and the magnetic connector of the charging cable regularly. Clean them with a small brush and canned or compressed air.

CHAPTER 7

# Troubleshooting

## Problems and remedies

| Problem | Remedy |
|---|---|
| The display is frozen. | 1. Press the on/off button to switch the pump off.<br>2. Remove the battery pack (see Replacing the battery pack (p. 28)) — in a non-hazardous area only.<br>3. Fit the battery pack again. |
| The pump stopped during a sample; the LEDs flash red and an exclamation mark appears next to the flow rate. | Flow fault — see Flow faults (p. 25). Check for kinked tubing and an overloaded or blocked sample medium, and check the battery charge. |
| In constant pressure mode the pump speeds up and then goes into flow fault. | The sample media are missing or their pressure drop is below the set pressure. Connect the media, or set the pressure again (see Several sorbent tubes, constant pressure (p. 20)). |
| The pump does not charge. | See If the pump does not charge (p. 30). |
| The screen does not respond during a sample. | The screen is locked. Press the on/off button; with Secure Lock on, enter the passcode or use the master unlock (see Setting the Secure Lock passcode (p. 16)). |
| The history records on the pump are irregular. | Delete the pump memory with DataTrac Pro (see Using the pump with a PC (p. 27)). |

If none of these remedies helps, contact Analyt-MTC (see Service, warranty and contacts (p. 35)). Do not open the pump: beyond the tasks in Maintenance (p. 28), repairs are service work.

## If the pump does not charge

| What you see | What to check |
|---|---|
| The connector sits on the charging contact, but neither the cable LED nor the charging-contact LED is blue. | The charger has no power. Check that the cable is plugged into a mains adapter in a live outlet, a PC with power, or a charged power pack that is suitable for the pump. |
| Only the LED on the cable is blue. | The connector is not making contact with the pump. Seat it on the charging contact again. When the connection is right, both LEDs are blue. |

**Note**
Charge within 0 to 45 °C. In places with metallic dust, keep the magnetic contact and connector clean (see Cleaning the charging contacts (p. 29)).

CHAPTER 8

# Specifications

## Flow and performance

| | |
|---|---|
| Flow range, constant flow mode | 20–500 mL/min |
| Flow compensation, constant flow mode | 20–500 mL/min against up to 20 in. $H_2O$ back pressure |
| Pressure range, constant pressure mode | 1–20 in. $H_2O$ |
| Flow control | Corrects for changes in back pressure, temperature and atmospheric pressure |
| Accuracy | Constant flow: ±5 % of set point or ±3 mL/min, whichever is greater<br>Constant pressure: ±0.5 in. $H_2O$ |
| Flow fault | After 3 to 10 seconds of restricted flow the pump stops, the elapsed time stops, the status LEDs flash red and a fault symbol appears. After 20 seconds in fault, up to 5 automatic restarts, unless full airflow returns earlier. If not restored after 5 restarts within 5 minutes, the pump ends the run and shows the Sample Summary. |

## Power

| | |
|---|---|
| Battery | Removable, rechargeable Li-Ion battery pack, 3.6 V, 3.3 Ah, 12 Wh (approved packs P76303 and P76303A); or USB charger |
| Run time on battery | More than 20 h at 500 mL/min against up to 20 in. $H_2O$ back pressure*; longer when connected to a charger |
| Charging time | Up to 10 h (up to 4.5 h to 80 %), depending on battery capacity and state of discharge |
| Charging limits | Maximum charge input voltage $U_m$ = 5.5 V; battery packs approved for at most 4.2 V DC charging voltage and 400 mA charging current |

* Measured with a new pump and battery and a 37 mm, 0.8 µm mixed cellulose ester (MCE) filter. Run time in use may differ.

## Operating conditions

| | |
|---|---|
| Temperature | Operating 32–113 °F (0–45 °C) · charging 32–113 °F (0–45 °C) · storage −4 to 113 °F (−20 to 45 °C) |
| Humidity | Up to 95 % RH, non-condensing |
| Altitude | Flow corrected for temperature (32–113 °F, 0–45 °C) and ambient pressure up to 15000 ft (4572 m) above and down to 2300 ft (701 m) below sea level |

## Display and sensors

| | |
|---|---|
| Display | High-contrast backlit liquid crystal display (LCD): time, date, battery status, flow rate, sample volume, temperature, atmospheric pressure, back pressure, remaining time of a programmed run, elapsed run time |
| User interface | Capacitive touch screen with eight touch areas, dimming and locking |
| Sensor accuracy | Atmospheric pressure ±0.3 inHg · temperature ±1.0 °C · real-time clock ±1 % |
| Data memory | Up to 4416 data entries (about 70 h of 1-minute or 360 h of 5-minute averages); Sample Summaries of the last 16 runs on the pump |
| PC communication | Low-energy Bluetooth; needs the DataTrac Pro USB Bluetooth Adapter, Cat. No. 877-94 |

## Mechanical

| | |
|---|---|
| Dimensions | 3.2 × 3.8 × 1.5 in (8.1 × 9.7 × 3.8 cm) |
| Weight | 8.3 oz (235 g) |
| Case | Polycarbonate with rubberised anti-static overmoulding; IP64 |
| Tubing | 1/4 in inside diameter |

## Certifications

| | |
|---|---|
| Intrinsic safety | Pump Cat. No. 220-1000TC operated with battery pack P76303 or P76303A:<br>Class I, Groups A, B, C, D; Class II, Groups E, F, G; Class III; T4<br>Class I, Zone 0, Group IIC T4; Ex ia; −20 °C ≤ Ta ≤ 45 °C<br>Ex II 1G Ex ia IIC T4 Ga<br>IECEx UL 16.0113 · DEMKO 16ATEX 1600 · UL22UKEX2584 |
| Rating label | cULus Listed mark, E62011, with the ratings listed above, the CE 0539 and UKCA 0843 marks and the serial number |
| Marks | CE 0539 · UKCA 0843 · RoHS compliant |

The certification applies only under the conditions in Safety (p. 6).

CHAPTER 9

# Ordering information

Order from Analyt-MTC with the order codes.

For the pump and its kits, see Checking the contents (p. 8). Use only these original parts: the UL listing for intrinsic safety holds only with approved parts, and other parts void the warranty.

## Charging and data accessories

| Description | Order code |
|---|---|
| Single USB Charger with magnetic connector: charging cable and mains adapter (US plug), 100–240 V | 220-300A |
| Single charging cable, USB, with magnetic connector, without mains adapter | P75739 |
| 5-port USB hub with power cable (US plug), 100–240 V; needs one charging cable P75739 per pump, up to 5 | 220-400 |
| DataTrac Pro USB Bluetooth Adapter; needed to download and use the free DataTrac Pro software | 877-94 |

## Flowmeters and sampling accessories

| Description | Order code |
|---|---|
| Low Flow chek-mate Flowmeter, 20–500 mL/min, with 9 V alkaline battery and a calibration certificate traceable to UK standards | 375-00205 |
| The same flowmeter with a calibration certificate traceable to NIST or ISO standards | NIST: Ask Analyt-MTC<br>ISO: 375-00205S |
| Low Flow Tube Holder with cover, non-adjustable, for tubes of<br>6 mm outside diameter (OD) × 70 mm (cover A)<br>8 mm OD × 110 mm (cover B)<br>10 mm OD × 150 mm (cover C)<br>10 mm OD × 220 mm (cover D) | <br>222-3-1<br>222-3L-1<br>222-3XL-1<br>222-3XD-1 |
| Adjustable Multiple-tube Low Flow Holder<br>Dual (up to 2 tubes)<br>Tri (up to 3 tubes)<br>Quad (up to 4 tubes) | <br>224-26-02<br>224-26-03<br>224-26-04 |
| Tube cover<br>A (6 mm OD × 70 mm)<br>B (8 mm OD × 110 mm)<br>C (10 mm OD × 150 mm)<br>D (10 mm OD × 220 mm) | <br>224-29A<br>224-29B<br>224-29C<br>224-29D |
| Constant Pressure Controller (CPC), for multiple-tube sampling in constant flow | 224-26CPC-10 |
| Quick-connect Bag Sampling Adapter, fits the pump exhaust, takes PTFE tubing of 1/4 in OD | 220-200 |
| Single kit case, nylon, with shoulder strap | 224-903 |
| 5-pump kit case, hard-sided | 224-915 |

## Spare parts

| Description | Order code |
|---|---|
| Replacement battery pack, Li-Ion (P76303 and P76303A are the only battery packs approved for the pump) | P76303A |

**WARNING**

A non-approved, 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 P76303A.

CHAPTER 10

# Service, warranty and contacts

Analyt-MTC is your contact for everything concerning the Pocket Pump TOUCH: technical questions, spare parts and accessories, repairs and warranty claims. Any work beyond the user tasks in Maintenance (p. 28) — including anything inside the pumping compartment — is service work, done by the manufacturer's authorised service to keep the pump's performance and intrinsic-safety rating; Analyt-MTC arranges it.

## Contact

**ANALYT-MTC Messtechnik GmbH**

**German Headquarters**

Klosterrunsstraße 18, 79379 Müllheim
Germany

+49 7631 5545

info@analyt-mtc.de

**French Subsidiary**

175 Avenue d'Alsace, 68000 Colmar
France

+33 3 89 41 47 78

info@analyt-mtc.fr

www.analyt-mtc.com

**Before you contact Analyt-MTC**

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

- the serial number and firmware version from the **Info** screen (see Pump information (p. 26)), or the serial number from the rating label on the back of the pump;
- what happened, and the Sample Summary of the run concerned (see Sample history (p. 25)).

## 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 the tests 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

Make warranty claims to Analyt-MTC; Analyt-MTC's warranty terms apply; ask Analyt-MTC for them. The warranty lapses if the warnings and cautions in this manual are not followed. Examples:

- the pumping compartment has been opened by the user;
- an unapproved battery pack or charging cable has been used;

- the battery pack has been tampered with — opened, disassembled, short-circuited, crushed, or exposed to fire or temperatures above 212 °F (100 °C);
- a repaired or rebuilt battery pack has been used.

## 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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