863 Valley View Road, Eighty Four, PA 15330
724-941-9701
skcinc.com

AirChek Essential Sample Pump
Cat. No. 220-3000
Operating Instructions

Figure 1. AirChek Essential Overview

Table of Contents

INTRODUCTION

Checking Pump/Kit Contents

Use the table below to verify that you received all items associated with the Cat. No. ordered. If you are missing items, contact SKC at 800-725-8472 (U.S. only) or 724-941-9701.

If you ordered Cat. No.	Your package should contain
220-3000	**Pump only** with lithium-ion (Li-Ion) battery pack and screwdriver set
220-3000-S	**Starter Kit** includes pump as described above, Lite Charging Cradle, power supply with cord, 3 feet (0.9 meter) of Tygon tubing, and collar clip cable with tie **100-240 V**
220-3000-K	**Single High Flow Kit** includes pump as described above, Lite Charging Cradle, power supply with cord, and filter cassette holder, in a soft-sided nylon carry case **100-240 V**
220-3000-KD	**Single High/Low Flow Kit** includes pump as described above, Lite Charging Cradle, power supply with cord, filter cassette holder**,** All-in-One adjustable tube holder, and Type A protective tube cover, in a soft-sided nylon carry case **100-240 V**
220-3000-K3D	**3-pack High/Low Flow Pump Kit** includes 3 pumps as described above and 3 each: Lite Charging Cradles, filter cassette holders, All-in-One adjustable tube holders, and Type A protective tube covers; and one multi cradle power supply with cord and splitter in a hard-sided case **100-240 V**
220-3000-K5	**5-pack High Flow Pump Kit** includes 5 pumps as described above and 5 each: Lite Charging Cradles and filter cassette holders, and one and multi cradle power supply with cord and splitter in a hard-sided case **100-240 V**
220-3000-K5D	**5-pack High/Low Flow Pump Kit** includes 5 pumps as described above and 5 each: Lite Charging Cradles, filter cassette holders, All-in-One adjustable tube holders, and Type A protective tube covers; and one multi cradle power supply with cord and splitter in a hard-sided case **100-240 V**

GETTING STARTED

Charging the Battery Pack

Set up the charging train (*Figure 2*) and completely charge the battery pack(s) before operating the pump.

1. Prepare charging cradle(s).
    a. **Single cradle**: Insert connector on Single Cradle Power Supply Cat. No. 220-600 into power port on side of Standard Charging Cradle Cat. No. 220-800. Insert wall cube into a 100 or 240-volt wall outlet.
    b. **Up to five cradles**: Using Multi Cradle Power Supply and Splitter Cat. No. 220-851, first connect power supply and splitter. Insert a splitter connector into power port on back of Lite cradle and repeat with up to five connectors and cradles. Plug power supply into a 100 to 240-volt wall outlet.

2. Align the contacts on the bottom edge of the pump with the contacts inside the cradle and insert the pump in the cradle. Repeat for each additional pump/cradle.

3. Charge the battery completely (approximately 3 hours). The left LED on the cradle will indicate charging status. *See Reading Charge Status on Cradle LED*.

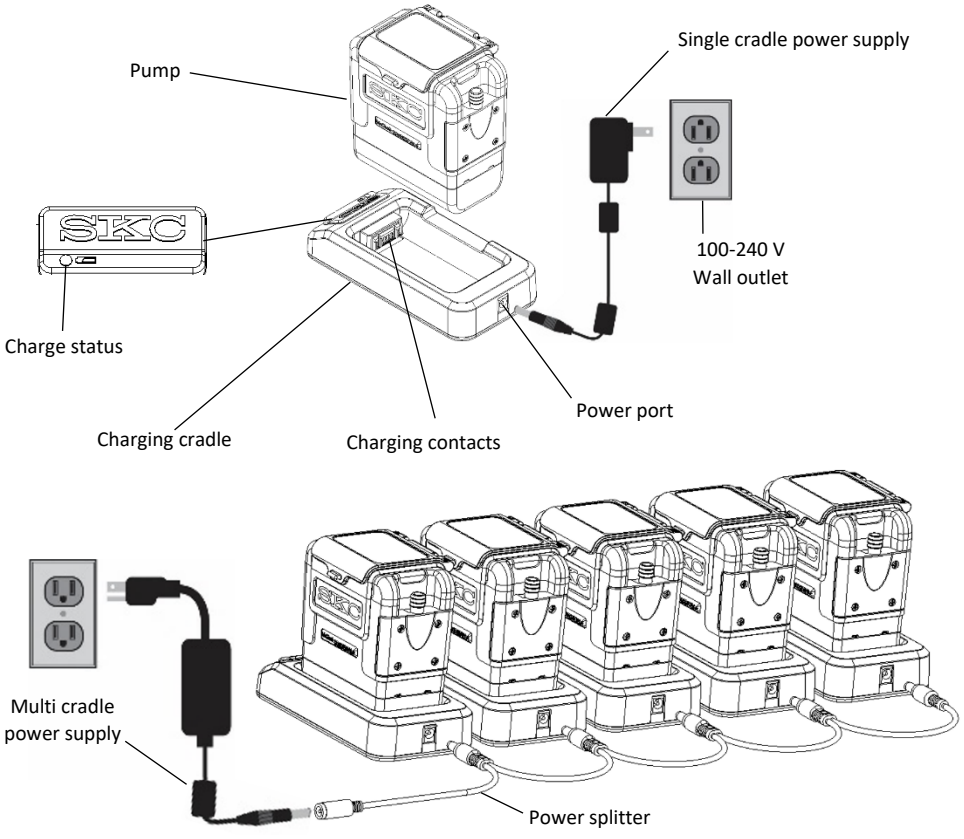


Figure 2. Charging Train, Single and Multiple Cradles

Reading Charge Status on Cradle LED

The left LED on the charging cradle indicates battery status. Observe the LED steadily for > 5 seconds.

LED Action			Charge Status
Red ● steady			Charge in progress
Red ● 3 sec	Green ● 1 sec	(Pattern repeats)	Approximately 75% charged
Green ● steady			Charge completed/trickle charge

Notes and Cautions

- Power off pump before removing battery.
- Use only the SKC charging cradle Cat. No. 220-800, 220-850, or 220-900 for pump.
- Failure to follow warnings, notes, and cautions may cause injuries and voids any warranty.
- WARNING: Substitution of components may impair intrinsic safety. AVERTISSEMENT: La substitution de composants peut compromettre la Sécurité Intrinsèque.
- CAUTION: The battery used in this device may present a risk of fire or explosion when heated above 212 F (100 C) or incinerated. Replace battery with SKC Battery Pack model P75718 only. Use of another battery may present a risk of fire or explosion.
- WARNING: To prevent ignition of a hazardous atmosphere, batteries must only be changed [removed and replaced] in an area known to be non-hazardous. AVERTISSEMENT: Afin de prévenir l'inflammation d'atmosphères dangereuses, ne changer les batteries que dans des emplacements désignés non dangereux.
- Maximum charge input voltage is U_m = 12 V
- CAUTION: Risk of Fire and Burns. Do Not Disassemble, heat above 212 F (100 C), or incinerate. Keep battery out of reach of children and in original package until ready to use. Dispose of used batteries promptly according to [all state and] local recycling or waste regulations.
- User may replace external components such as the inlet filter, battery, protective screen cover, and/or belt clip. Service must be done by SKC to maintain performance and IS rating. Warranty is void if pumping compartment is opened by user.

For more information on SKC pump lithium-ion (Li-Ion) battery packs, visit the Knowledge Center at www.skcinc.com.

Turning Pump Power On/Off

Turn on: Press and hold briefly the power on/off button on the side of the pump (*see Figure 1*). A startup screen will very briefly display all status indicators, followed by the firmware version (*right*) and then the set/verify flow screen or sampling screen showing elapsed time from a previous run. *See Using the Operation Screens.*

Firmware version is displayed for 3 seconds.

Turn off: Press and hold briefly the power on/off button on the side of the pump (*see Figure 1*). ***Note****: A non-running pump will shut off automatically after 60 seconds of inactivity but will hold the elapsed time from the last operation until the timer is reset.*

Note*: The on/off button also locks and unlocks the touch pad and dims the screen during sampling. See Options/Modes during Sampling.*

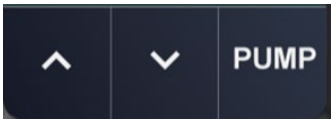
Determining Battery Charge Status

The battery status icon at the top right of the pump display screen has four bars that decrease in number as battery charge is depleted. See the table below to interpret the battery status.

Icon Displayed	Battery Charge Remaining
Four bars	Full battery charge, approximately 75 to 100%
Three bars	Approximately 50 to 75%
Two bars	Approximately 25 to 50%
One bar	Approximately 5 to 25%
No bars	Low battery fault is imminent. Pump will stop and power off eventually. When pump is powered on again, elapsed run time and fault icon will be displayed on the screen until pump is reset. *See Using the Operation Screens.*

Using the Touch Keypad

Lift the protective screen cover. Use your fingertip to touch the three keys on the screen keypad:



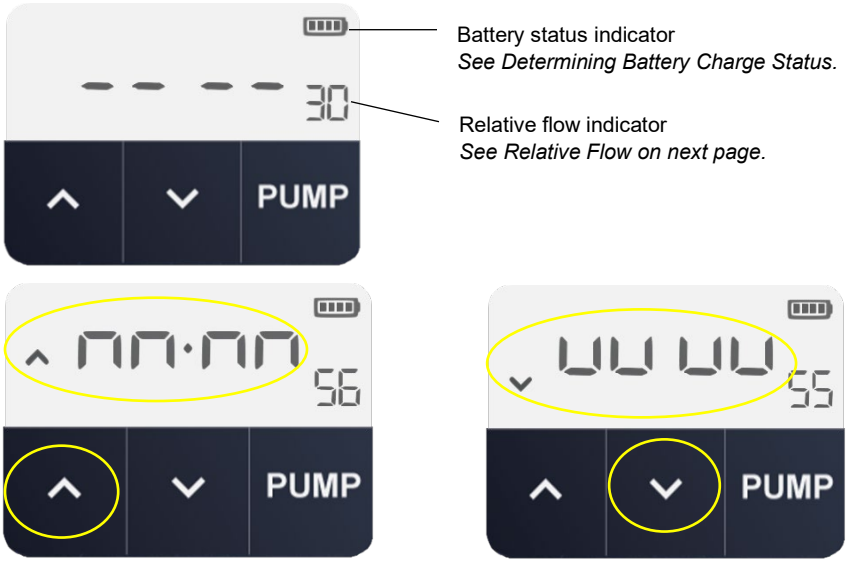
U**p and down arrows** increase or decrease flow rate; during sampling, touching either arrow key briefly displays the relative flow indicator, described below. *See Set/Verify Flow Screen for details.*

PUMP starts and pauses/stops pump; touch and hold to reset elapsed time.

Using the Operation Screens: Setting/Verifying Flow Rate and Sampling

Set/Verify Flow Screen

With pump connected to a flowmeter, touch and hold the up and down arrow keys on the touch keypad to increase or decrease flow rate (*see below*). **Actual flow rate is displayed on flowmeter only.**



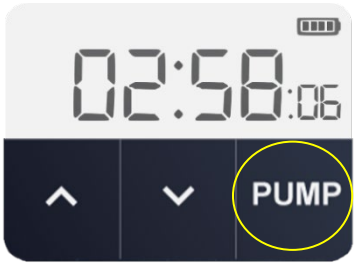
Flow rate being increased

Flow rate being decreased

Relative Flow—A number between 1 and 99 that is relative to a flow rate and changes as flow is adjusted: 1 corresponds to the minimum and 99 to the maximum flow at which the pump can be set.

Relative flow is different for each pump. In most cases, 10 ±5 will correspond to 1 L/min and 80 ± 5 will correspond to 5 L/min. Also displayed on the **sampling screen** when you touch the up or down arrow key during a run (if Screen Lock is not activated).

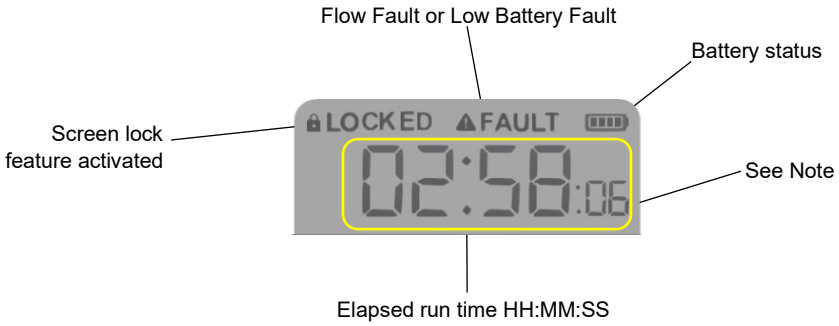
Sampling Screen



Touch the PUMP key to begin sampling.

Touch the PUMP key again to pause or stop sampling.

Sampling Screen Indicators



***Note**: The relative flow indicator is displayed in place of seconds on sampling screen when up or down arrow key is touched during sampling. Also displayed on set/verify flow screen. See Set/Verify Flow Screen for details.*

See Options/Modes During Sampling for details about the screen lock feature and flow fault mode.

Reading Pump Status Indicators

The status LEDs that bracket the screen display (*see Figure 1*) indicate pump status:

Green, flashing = Running

Red, flashing = Flow fault

***Note**: Status LEDs will flash red/green to indicate that the pump is out of flow tolerance just before entering flow fault mode and during each auto-restart attempt while in flow fault mode.*

OPERATION

Setting/Verifying Flow Rate from 1 to 5 L/min

- *Allow pump to equilibrate after moving it from one temperature extreme to another.*
- *Charge pump battery completely before flow rate verification and sampling.*
- *To achieve the best results, run the pump for 5 to 15 minutes before verifying flow rate.*

1. Turn on the pump using the on/off button. If elapsed time from the last sampling run is still displayed, touch and hold the PUMP key on the screen touch keypad to return to the set/verify flow screen.
2. Prepare the flowmeter per flowmeter instructions.
3. Set up a flow rate verification train (*Figure 3*).
4. Using the up and down arrow keys on the pump set/verify flow screen, adjust flow until the flowmeter indicates the method-specified flow rate.
5. Touch the PUMP key to pause/stop the pump. The pump is now set to the selected flow rate.
6. Disconnect the pump from the representative sampling medium and flowmeter. Proceed to Sampling.

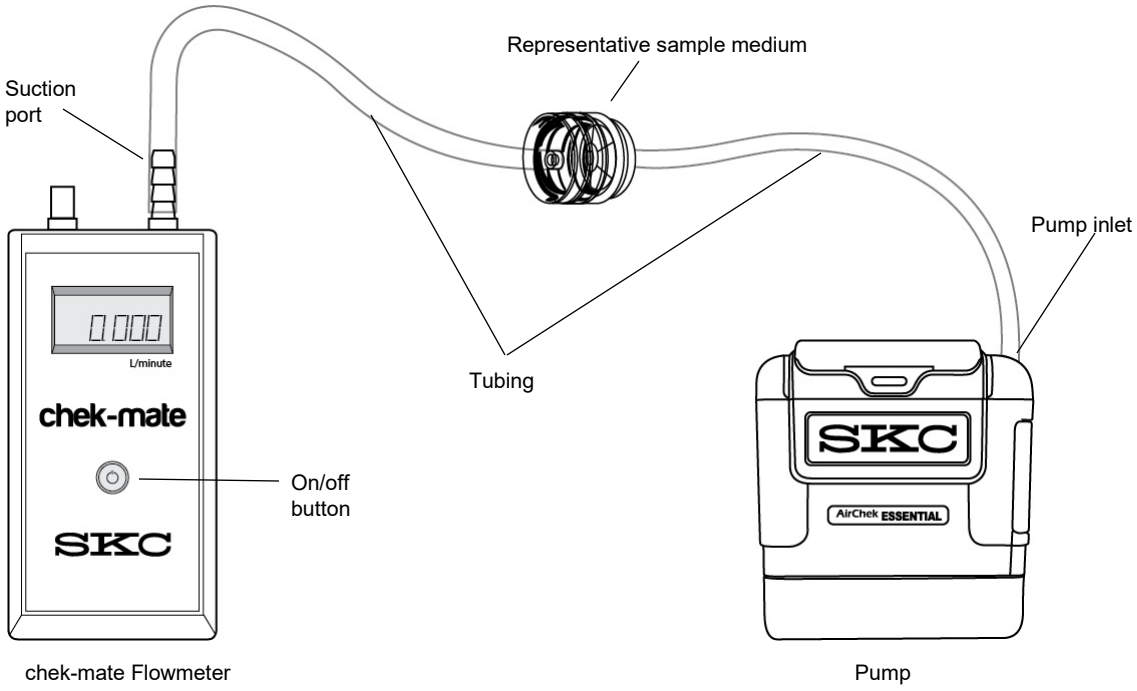


Figure 3. Flow Rate Verification Train (1 to 5 L/min)

Setting/Verifying Flow Rate from 5 to 500 ml/min

- *Allow pump to equilibrate after moving it from one temperature extreme to another.*
- *Charge pump battery completely before flow rate verification and sampling.*
- *Single-tube sampling requires All-in-One adjustable tube holder; see All-in-One operating instructions for details on operation.*
- *Multiple-tube sampling requires Constant Pressure Controller (CPC) and Dual, Tri, or Quad Adjustable Low Flow Tube Holder accessory; see CPC and Adjustable Low Flow Tube Holder operating instructions for details on operation.*
- *Verify pump flow rate before and after each sampling operation using the tube holder and pump to be used for sampling.*
- *To achieve the best results, run the pump for 5 to 15 minutes before flow rate verification.*

Prepare the Sorbent Tube(s)

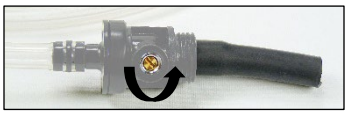
1. Determine the number and type of sorbent tubes needed for pre-sample flow rate verification and sampling.
2. Break tips off representative sorbent tubes for pre-sample flow rate verification.
3. If performing multiple-tube sampling, label tubes.

Prepare the Pump

1. Turn on the pump using the on/off button. If necessary, reset the timer by touching and holding PUMP on the screen touch keypad.
2. After preparing the flowmeter *per flowmeter instructions*, use flexible tubing to connect the flowmeter outlet (suction port) to the pump inlet.
3. Set pump flow rate using the up and down arrow keys on the set/verify flow screen to increase or decrease flow:
    a. **Single-tube sampling—**1.5 L/min.
    b. **Multiple-tube sampling—**the **sum of all flows + 15%.** ***Note****: Do not exceed 500 ml/min flow rate per tube for multiple-tube sampling.*
4. Disconnect the tubing from the pump inlet.

Prepare the All-in-One Adjustable Tube Holder (single-tube sampling)

1. On the tube holder, insert an opened representative tube (arrow on tube pointing toward the pump) into the rubber sleeve on the port. *See Figure 4.*
2. Use a small flat-head screwdriver to turn counterclockwise the brass flow adjust screw directly beneath the port.



Prepare the Dual, Tri, or Quad Adjustable Low Flow Tube Holder (multiple-tube sampling)

- On the tube holder, insert an opened representative tube (arrow on tube pointing toward the pump) into the rubber sleeve on the port. Repeat for the desired number of tube samples. *See Figure 5*. Place an unopened (inactive) tube in any unused port to “seal” it.
- Label ports on the adjustable tube holder to match the tube labels.
- Use a small flat-head screwdriver to turn counterclockwise the brass flow adjust screw directly beneath the port holding the first active tube for which flow rate will be verified.

Set Up the Flow Rate Verification Train

Set up the flow rate verification train as shown in Figures 4 and 5, connecting the flowmeter to the single sorbent tube or the first of multiple sorbent tubes.

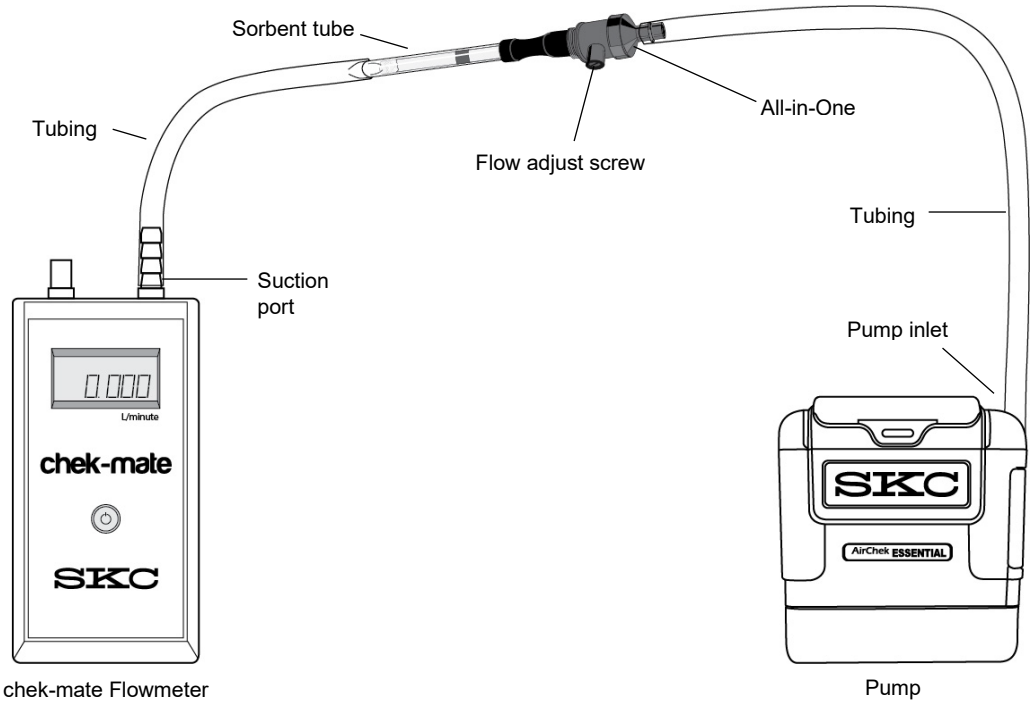


Figure 4. Flow Rate Verification Train (5 to 500 ml/min) for Single Tube

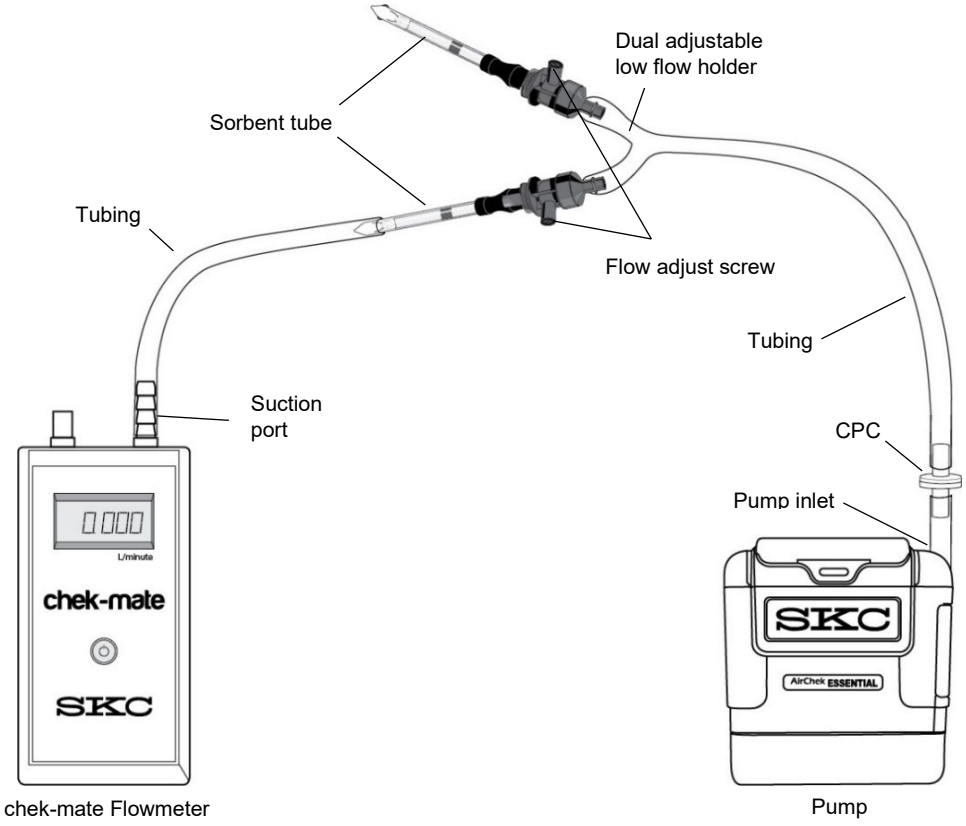


Figure 5. Flow Rate Verification Train (5 to 500 ml/min) for Multiple Tubes

Verify Pump Flow Rate with the All-in-One (single tube)

1. Using a small flat-head screwdriver, turn the flow adjust screw on the port **clockwise to decrease** flow or **counterclockwise to increase** flow until the method-specified flow rate is indicated on the flowmeter.
2. Once flow is verified for the tube, it is recommended practice to recheck it before removing the tube. Any adjustment should be minimal.
3. Disconnect the pump from the representative sampling medium and flowmeter. Proceed to *Sampling*.

Verify Pump Flow Rate with the Dual, Tri, or Quad Adjustable Low Flow Tube Holder

- *See appropriate adjustable low flow holder instructions*.

1. Using a small flat-head screwdriver, turn the flow adjust screw on the first active port **clockwise to decrease** flow or **counterclockwise to increase** flow until the method-specified flow rate is indicated on the flowmeter.
2. Remove flowmeter tubing from the current tube and install it on the next active tube. Use a small flat-head screwdriver to turn counterclockwise the brass flow adjust screw directly beneath the port holding the tube for which flow is to be verified and repeat Step 1.
3. Repeat Steps 1 and 2 for each remaining active tube.
4. Once flow is verified for the tube, it is recommended practice to recheck it before removing the tube. Any adjustment should be minimal.
5. Disconnect the pump from the representative sampling medium and flowmeter. Proceed to *Sampling*.

Sampling

- *Allow pump to equilibrate after moving it from one temperature extreme to another.*
- *Charge pump battery completely before flow rate verification and sampling.*
- *Use of any device (including charging cradle) or battery pack other than P75718 to power the pump voids intrinsic safety certifications and any warranty.*
- *Pump can be operated from cradle.*
- *If using sample tubes as media, verify pump flow rate before and after each sampling operation using the tube holder and pump used for sampling.*

1. After setting and verifying flow rate, replace representative media with new, unexposed media for sample collection.
2. Set up the sampling train. *See Figure 6*.
3. Touch the PUMP key on the screen touch keypad to start sampling. ***Note****: To lock screen during sampling, press pump on/off button (see Options/Modes During Sampling below*).
4. Touch the PUMP key to stop sampling. Record run time and any other pertinent information. The elapsed time will flash on the screen.
5. Remove sample medium and cap it. Reinstall representative sample medium and perform post-sampling flow verification. *See Setting/Verifying Flow Rate*.

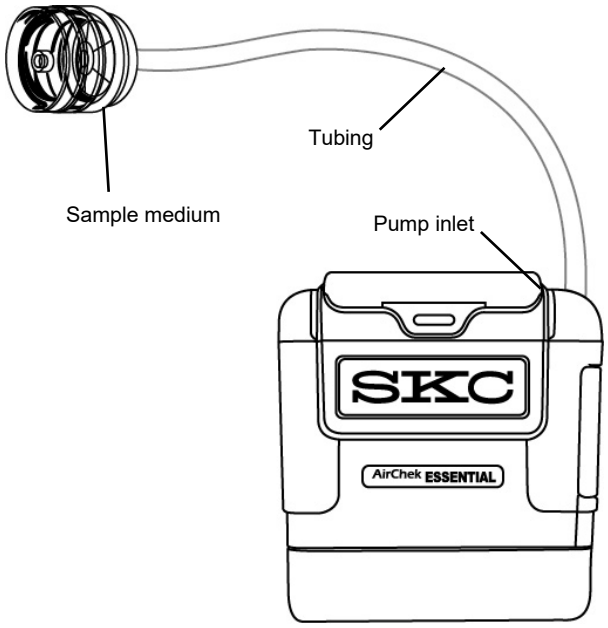
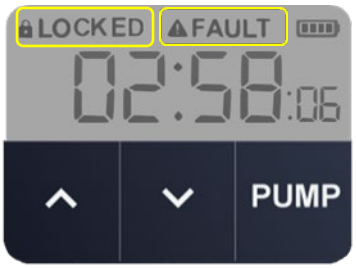


Figure 6. Sampling Train (high flow)

Options/Modes During Sampling

Screen Lock — Prevents the pump from being stopped by an accidental touch during sampling.

To lock the screen, press the pump on/off button while the pump is running. The screen locked indicator will be displayed on the screen and the screen will dim (*right*).



To unlock the screen, press the pump on/off button again. The indicator will disappear, and backlighting will be restored.

Fault Mode — Occurs when the pump cannot compensate due to insufficient battery charge, overloaded sample media, or kinked tubing.

Low battery:

- Pump stops/powers off without warning (time varies with load).
- Elapsed time from sampling run is retained.
- Charge the pump battery (*see Figure 2*).
- Fault icon displays when the pump is turned on but will disappear during subsequent sampling.

Flow fault — If a fault is sustained longer than 15 seconds:

- Pump status LEDs flash red.
- Pump stops running.
- Fault icon is displayed (*above right*).
- Pump attempts auto-restart every 15 seconds up to 5 times. If flow is corrected during auto-restart, pump will continue sample accumulation. If flow is not corrected during auto-restart, pump will stop and run time will reset.

MAINTENANCE

Replacing the Battery Pack

Ensure that pump is turned off before removing the battery pack and that no tubing or media are attached to the pump.

1. Turn the pump off by pressing the on/off button.
2. Remove the existing battery pack.
    a. Use a 2.5-mm hex driver (Allen wrench) to loosen two screws on the bottom of the battery pack housing.
    b. Pull the battery pack housing away from the pump case.
    c. If replacing the battery pack with a new Cat. No. P75718, dispose of the used battery promptly.

Do not disassemble the battery pack. Do not dispose of in fire. Dispose of used batteries promptly according to all state and local recycling of waste regulations.

3. Install a new battery pack or reinstall the existing battery pack.
    a. Align the battery pack with the bottom of the pump case. ***Note****: The connector on top of the battery pack should align with the protruding power control board contacts on the bottom of the pump case.*
    b. Press the two parts together until snug. ***Note****: When the battery pack is attached, the pump screen will display a 20-second countdown as the zero setting of the flow sensor is performed.*
    c. Use a 2.5-mm hex driver (Allen wrench) to tighten two screws on the bottom of the battery pack housing. Tighten the screws in an alternating fashion.
    d. Charge the new battery pack completely before use; if reinstalling the existing battery pack, ensure that it is charged to at least 25% (battery status icon upon startup shows two bars). *See Charging the Battery Pack.*

Replacing the Screen Cover

1. Remove the two screws from the top of the screen cover mounting block.
2. Lift off the screen cover and mounting block.
3. Align and press-fit the mounting block onto the new screen cover posts (i.e., with the underside of the mounting block facing up and its straight edge facing away from the cover). Rotate the mounting block away from the screen cover until it is stopped by the inside edge of the screen cover.
4. Align the screen cover/mounting block with the holes in the top of the belt clip/top pump case.
5. Gently insert the two screws through the mounting block into the belt clip. Tighten until snug.
6. Ensure that the screen cover closes properly.

Replacing the Belt Clip

1. Remove the screen cover.
    a. Remove the two screws from the top of the screen mounting block.
    b. Lift off the screen cover and mounting block. ***Note****: Do not remove the two lower hex nuts from the main case.*
2. Remove the screw from the bottom of the belt clip and pull the screw through the opening in the clip.
3. Lift the belt clip away from the pump. Ensure that the hex nut in the top of the case does not fall out.
4. Push the new belt clip into place until it fits snugly.
5. Gently insert the belt clip screw through the opening in the belt clip and into the pump case. Tighten the screw until engaged. Do not tighten completely.
6. Replace the screen cover.
    a. Place the screen cover and mounting block so that the two holes are aligned with the holes in the top of the belt clip. Insert the two screws into the mounting block and tighten until snug.
    b. Ensure that the screen cover closes properly.
7. Tighten the screw under the belt clip until snug.

Replacing the Inlet Housing and/or Inlet Filter

1. Remove the four screws from the inlet housing.
2. Pull the inlet housing away from the pump.
3. Remove the O-ring and filter.
4. Insert the new or existing filter and O-ring into the inlet recess. Ensure that the O-ring is fully flat.
5. Align the new or existing inlet housing with the inlet recess.
6. Insert the four screws into the inlet housing. Tighten the screws only until the gap between the inlet housing and pump is closed.

TROUBLESHOOTING

If the pump is not responding to touch or the pump screen displays uncommon characters, remove and reinstall the battery (*see Replacing the Battery Pack*). If these problems persist, contact SKC.

Pump Service

Pumps under warranty should be sent to SKC Inc. for servicing. See Limited Warranty and Return Policy.

User may replace external components such as the inlet filter, battery, screen protector, and/or belt clip. Service must be performed by SKC to maintain performance and intrinsic safety rating. Warranty is void if pumping compartment is opened by user.

ACCESSORIES/REPLACEMENT PARTS

Accessories	**Cat. No.**
Lite Charging Cradle, *requires power supply Cat. No. 220-600 or 220-851, see below*	220-850
Single Cradle Power Supply, for use with one charging cradle, 100-240 V	220-600
Multi Cradle Power Supply and Splitter for Lite Cradle, *for use with 1 to 5 Lite Cradles*, 100-240 V	220-851
Low Flow (5 to 500 ml/min) Kit includes All-in-One adjustable tube holder and Type A protective tube cover	210-500
Protective Pouch, nylon, with adjustable waist belt and shoulder strap, black	224-911
Medium Flow chek-mate Flowmeter with CalChek, 0.50 to 5 L/min, includes 9-volt battery	
with NIST standard traceable calibration certificate	375-0550N
with UK standard traceable calibration certificate	375-0550
with ISO standard traceable calibration certificate	375-0550S

Replacement Parts	**Cat. No.**
Replacement Battery Pack, Li-Ion*	P75718
Belt Clip	P51824
Inlet	P20423
Inlet Filter/O-rings, pk/3	P4001
Screen Cover	P20422

***Li-Ion Battery Testing and Shipment**

Rechargeable lithium-ion (Li-Ion) batteries for use with SKC sample pumps have been tested in accordance with the UN Manual and are proven to meet requirements of each test in the *UN Manual of Tests and Criteria*, Part III, subsection 38.3. The batteries are rated below 100 watt-hours (Wh).

AirChek Essential pumps contain Li-Ion batteries and are subject to special shipping regulations. Consult with your carrier for more information on Lithium Battery Shipping Regulations UN 3480 and UN 3481 or visit the Knowledge Center at www.skcinc.com.

Use only SKC-approved parts to ensure reliable performance and to maintain the UL Listing for intrinsic safety. Failure to do so voids any warranty.

Use of a repaired or rebuilt battery pack VOIDS ANY WARRANTY.

SKC Limited Warranty and Return Policy

SKC products are subject to the SKC Limited Warranty and Return Policy, which provides SKC's sole liability and the buyer's exclusive remedy. To view the complete SKC Limited Warranty and Return Policy, go to skcinc.com/warranty.

APPENDIX: PERFORMANCE PROFILE

Pump type	Type P for personal sampling of airborne particles according to ISO 13137:2022
Nominal flow range	Constant flow from 1000 to 5000 ml/min (5 to 500 ml/min requires low flow holder)
Nominal range of pressure drop (*back pressure capability*)	5000 ml/min at 20 inches water (0 to 5 kPa) back pressure (pressure drop) 4000 ml/min at 30 inches water (0 to 7.5 kPa) back pressure (pressure drop) 3000 ml/min at 40 inches water (0 to 10 kPa) back pressure (pressure drop) 2000 ml/min at 50 inches water(0 to 12.5 kPa) back pressure (pressure drop) 1000 ml/min at 60 inches water (0 to 15 kPa) back pressure (pressure drop)
Flow control system	Isothermal, corrects for changes in back pressure, temperature, and atmospheric pressure
Flow fault/Auto-restart	After 3 to 10 seconds of restricted flow, pump stops running, elapsed time stops, status LEDs flash red, and pump displays fault icon. After 20 seconds in fault, auto-restart is attempted up to 5 times unless full airflow is restored prior to that. If full airflow is not corrected during 5 restart attempts within 5 minutes, the pump ends the run.
Power	Removable rechargeable lithium-ion (Li-Ion), 7.4 V, 2.6 Ah, 19.2 Wh or AC using cradle
Operating time	8+ hours at 2000 ml/min at 16 inches water (4 kPa) back pressure (pressure drop) 8+ hours at 5000 ml/min at 20 inches water (5 kPa) back pressure (pressure drop) 40+ hours at 2000 ml/min* 15+ hours at 5000 ml/min* Indefinite run from charging cradle
Charging method	Cradle, available as a single unit using Lite Charging Cradle Cat. No. 220-850 with Single Cradle Power Supply Cat. No. 220-600; connectable up to 5 units using Multi Cradle Power Supply and Splitter for Lite Cradle Cat. No. 220-851
Charging time (*varies with battery capacity and level of discharge*)	Approximately 3 hours
Accuracy	**Flow control:** ± 5% of set-point **Atmospheric pressure:** ± 0.3 in Hg **Temperature**: ± 1.0 C **Time**: ± 0.002%
Temperature ranges	**Operating**: 32 to 104 F (0 to 40 C) **Charging**: 32 to 113 F (0 to 45 C) **Storage**: -4 to 113 F (-20 to 45 C)
Humidity ranges	**Operating**: ≤ 95% RH, non-condensing **Storage**: ≤ 95% RH, non-condensing
Altitude	Corrects flow for changes in temperature (32 to 104 F [0 to 40 C]) and ambient pressure up to 15,000 feet (4572 meters) above and down to 4500 feet (1372 meters) below sea level
Display/parameters	B&W display, elapsed sampling time
User interface	Capacitive touch screen with locking option
Status LEDs	Dual LED, blinking green = running pump, blinking red = flow fault
Sound level	Average 51.7 dB at 3-ft (1-m) distance using a 37-mm, 0.8-µm MCE filter cassette
Tubing	Requires ¼-inch ID tubing
Dimensions	4.1 x 3.7 x 2.8 in (10.4 x 9.4 x 7.1 cm)
Weight	19.4 oz
Certifications/Markings	• Intrinsic safety (SKC Cat. No. 220-3000 operated with SKC Battery Pack P75718) Class I, Groups A, B, C, D; Class II, Groups E, F, G; Class III, T4; Class I, Zone 0, AExia IIC T4 Ga; Exia IIC T4 Ga; -20°C ≤ Ta ≤ 45°C; Ex II 1G Exia IIC T4 Ga; IECEx UL 19.0100; DEMKO 19ATEX 2288; UL22UKEX2351; CE 0539; UKCA 0843 • Designed to meet ISO 13137:2022 c UL us LISTED E62011
RoHS	Compliant
Case material	Polycarbonate with rubberized anti-static overmolding
Ingress protection	IP6x dust-tight enclosure
Features	On-screen battery status display, ergonomic case design, secure clip, cradle for charging, ultra-quiet operation
Media	Use to sample with sorbent tubes, filters, size-selective particulate samplers, and impingers
Warranty	1-year limited warranty for pump 2-year limited warranty for battery pack on pumps purchased on or after February 13, 2025

**Tested using 37-mm 0.8-µm MCE filter with new pump and battery. Pump performance may vary.*