AirChek® TOUCH Sample Pump
Cat. No. 220-Series
Operating Instructions

863 Valley View Road, Eighty Four, PA 15330 USA • Tel: 724-941-9701 • www.skcinc.com

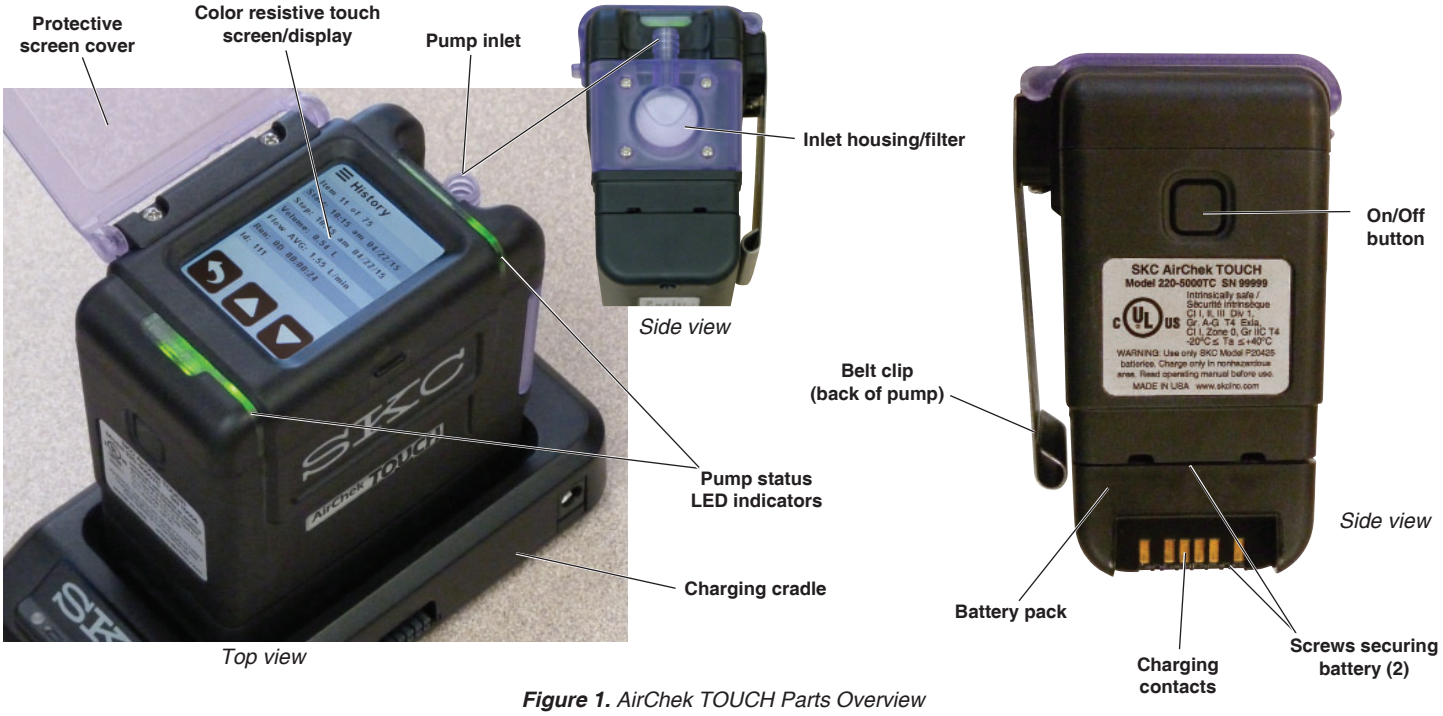


Figure 1. *AirChek TOUCH Parts Overview*

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 800-752-8472 (U.S. only) or 724-941-9701.

If you ordered Cat. No.	Your Package Should Contain
220-5000TC	Pump with lithium-ion (Li-Ion) battery pack and screwdriver set
220-5000TC-S	Pump with Li-Ion battery pack, screwdriver set, Standard Charging Cradle, power supply with cord, 3 feet (0.9 meter) Tygon tubing, and collar clip with cable tie **100-240 V**
220-5000TC-K	Pump with Li-Ion battery pack, screwdriver set, Standard Charging Cradle, power supply with cord, filter cassette holder, in a soft-sided nylon carry case **100-240 V**
220-5000TC-KD	Pump with Li-Ion battery pack, screwdriver set, Standard 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**
220-5000TC-KDE	Single High/Low Flow Enhanced Pump Kit includes pump with Li-Ion battery pack, Enhanced Charging Cradle (e-Cradle), power supply with cord, USB cable, 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**
220-5000TC-K3D	3-pack High/Low Flow Pump Kit includes 3 pumps with Li-Ion battery packs, 2 Standard Charging Cradles, 1 e-Cradle, power supply with cord, and USB cable, 3 each: filter cassette holders, All-in-One adjustable tube holders, and Type A protective tube covers, in a Pelican case **100-240 V**
220-5000TC-K5	5-pack High Flow Pump Kit includes 5 pumps with Li-Ion battery packs, screwdriver set, 4 Standard Charging Cradles, 1 e-Cradle, power supply with cord, and 5 filter cassette holders, in a Pelican case **100-240 V**
220-5000TC-K5D	5-pack High/Low Flow Pump Kit includes 5 pumps with Li-Ion battery packs, screwdriver set, 4 Standard Charging Cradles, 1 e-Cradle, power supply with cord, 5 each: filter cassette holders, All-in-One adjustable tube holders, and Type A protective tube covers, in a Pelican case **100-240 V**

Getting Started

Charging the Battery Pack

Set up charging train *(Figure 2)* and completely charge 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) or Charging e-Cradle (Cat. No. 220-900). Insert wall cube into a 100 to 240-volt wall outlet.

   b. **Up to 5 cradles:** Press together the connector on the side of the first cradle with the connector on the side of the succeeding cradle. Repeat connection to chain up to 5 Standard Charging Cradles or up to 4 Standard Cradles and 1 Charging e-Cradle. Insert connector of Multi Cradle Power Supply (Cat. No. 220-700) into power port on side of the last cradle in the chain. Insert wall cube into a 100 to 240-volt wall outlet.

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

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

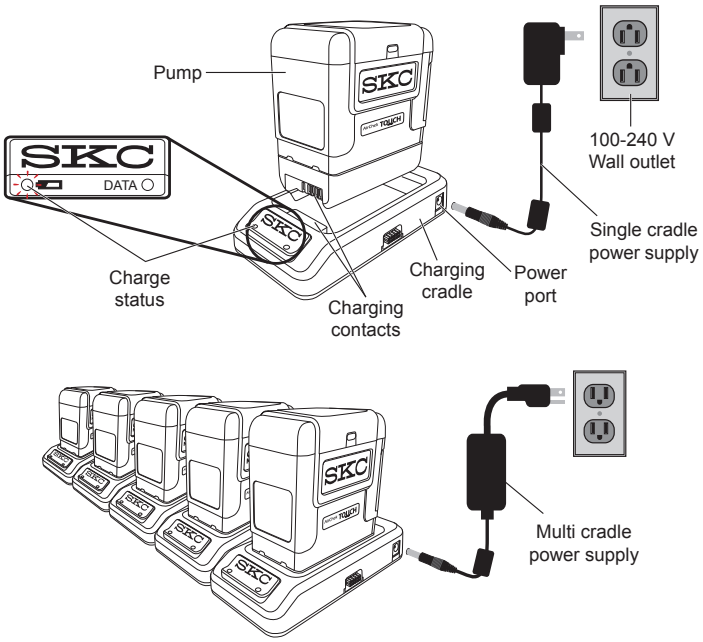


Figure 2. *Charging Train, Single and Multiple Cradles*

Reading Charge Status on Cradle LED

The left LED on the charging cradle indicates battery charge 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

- Do not operate pump from or charge pump with charging cradle in hazardous locations.
- Power off pump before removing battery to avoid loss of time, date, and other settings.
- Use only the SKC-approved battery pack (Cat. No. P75718) and charging cradle (Cat. No. 220-800 or 220-900) for pump. Use of an unapproved battery and/or charging cradle could damage the pump and will void any warranty.
- Tampering with the battery pack (opening, disassembling, short circuiting, crushing, or exposing the battery pack to fire or temperatures in excess of 212 F [100 C]) voids any warranty.
- 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.
- Failure to follow warnings, notes, and cautions voids any warranty.
- WARNING: Substitution of components may impair intrinsic safety. ADVERTISSEMENT: 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 Unlisted Component Battery Pack model P75718 only. Use of another battery may present a risk of fire or explosion.
- Model 220-5000TC: Exia – Intrinsically safe/ Sécurité Intrinsèque
- Warning: To prevent ignition of a hazardous atmosphere, batteries must only be changed [removed and replaced] in an area known to be non-hazardous. ADVERTISSEMENT: Afin de prévenir l'inflammation d'atmosphères dangereuses, ne changer les batteries que dans des emplacements désignés non dangereux.
- 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.

For more information on SKC pump lithium-ion (Li-Ion) battery packs, visit www.skcinc.com/catalog/pdf/instructions/1918.pdf.

Turning Pump Power On/Off *(Figure 1)*

Turn on: Press and hold briefly the recessed power button on the side of the pump *(Figure 1)*. The screen will light.

Turn off: Press and hold briefly the power button. The screen will turn off.

Note: *To conserve battery power, a non-running pump will power off automatically after 5 minutes of inactivity. Also see Auto-Dim feature/setting in Modifying Device Settings, Changing Security (Lock Out) and Auto-Dim.*

Determining Battery Charge Status

The battery status icon at the top right of the Home screen contains four bars that reduce in number as battery charge is depleted. Use the table below to interpret the battery status icon.

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. Run time data will be retained in history. A fault icon will appear on the screen once the pump is restarted.

Using the Touch Screen *(Figure 1)*

Access the touch screen by unlatching and lifting the protective screen cover *(Figure 1)*. Use a fingertip or fingernail tip to gently tap soft keys on the screen to set up and operate the pump.

Learning the Home Screen

The Home screen displays when the pump is powered on. The Home screen displays different soft keys depending on pump status (running, not running, pause). *See Figures 3 and 4.*

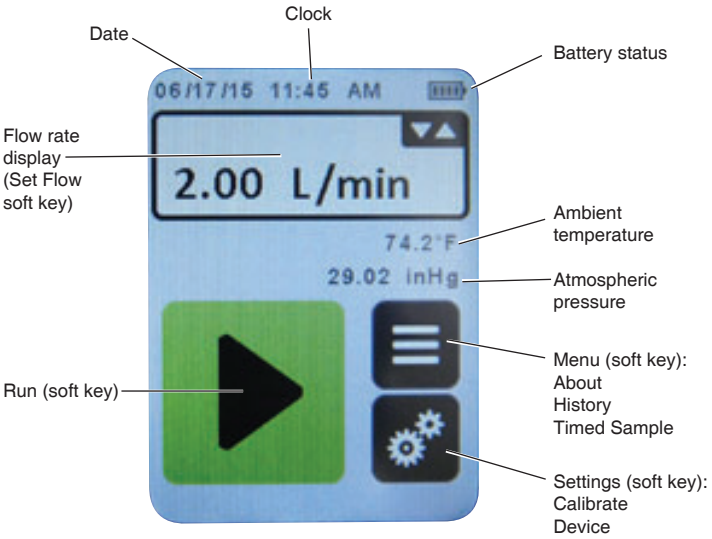


Figure 3. *Home Screen, Pump not Running*

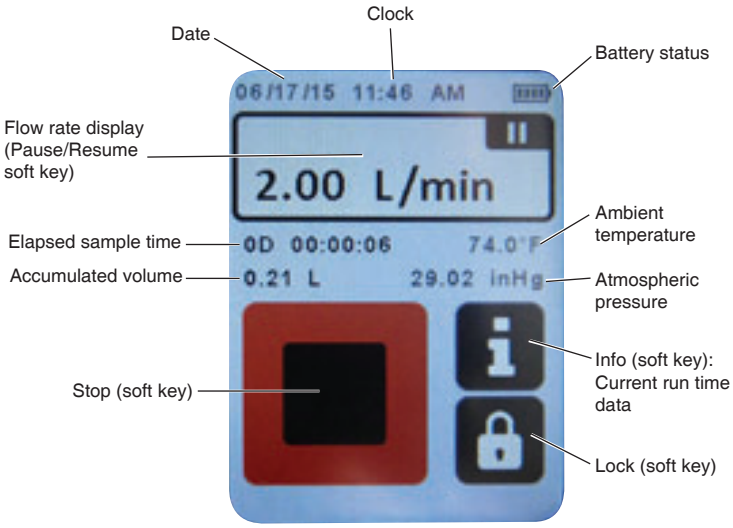


Figure 4. *Home Screen, Pump Running*

Reading Pump Status Indicators

Observe the status LEDs that bracket the touch screen on the pump to determine pump status. *See Figures 5 and 6.*

Figure 5. *Green, flashing = Pump or schedule running*

Figure 6. *Red, flashing = Flow fault*

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

Navigating Screens and Menus

Soft keys on the touch screen allow the user to move between screens/menus and to view, select, edit, and enter values *(see below)*.

Navigational Soft Keys

	Up/down arrows increase/decrease values or scroll through data
	Back moves to previous menu/screen
	Keypad allows entry of values such as flow rate, sample time, start time/date
	Home moves to Home screen
	Edit moves to initial input screen for changing selections/settings

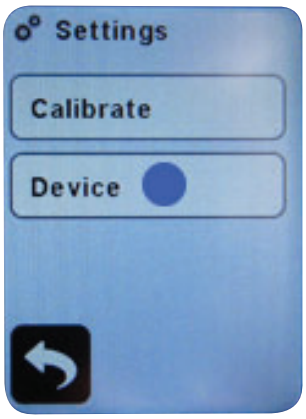
	Checkmark accepts selections/settings and moves to next menu/screen or Home screen
	Erase removes values from fields (right to left). Once all fields are empty, it moves to previous menu/screen.
	Exit moves to Home screen **without** accepting selections/values.
	Run starts a manual sample, timed run, and timed run with start date/time.
	Stop stops pump and resets run time/volume display. Run time data is saved to history.

Many settings and functions also can be modified or programmed in DataTrac Pro Software and uploaded to up to five pumps via e-Cradle and PC. Look for the symbol in this operating instruction to indicate where this functionality is available. ***See Using Pump with PC and DataTrac Pro Software.***

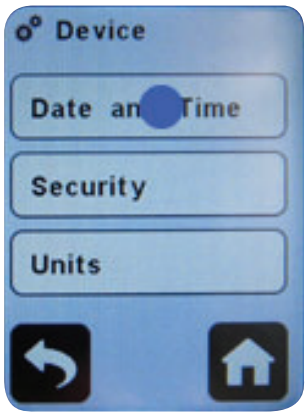
Modifying Device Settings (Date and Time, Security, and Units)

Changing Date/Time and Display

1. Touch Settings soft key.

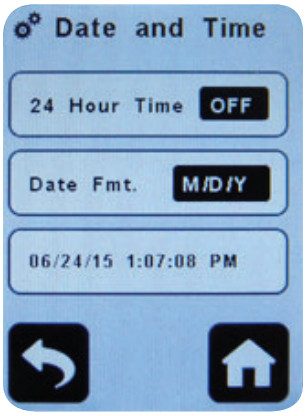


2. Touch Device.

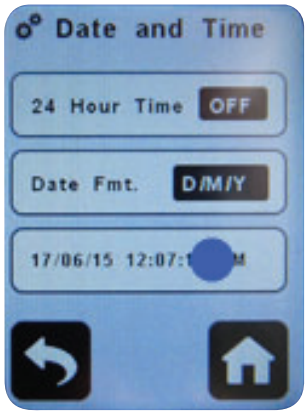


3. Touch Date and Time to access Date and Time screen.

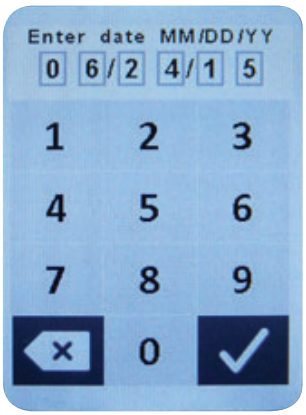
4. Touch 24-Hour Time to toggle ON and OFF *(displayed setting in effect)*.



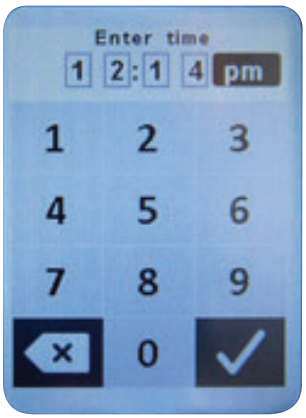
5. Touch Date Fmt. to toggle M/D/Y, D/M/Y, and Y/M/D *(displayed setting in effect)*.



6. Touch date and time display to change date and time.



6.a Enter date as prompted using keypad. Touch checkmark to accept and move to time screen.



6.b Enter time (hh:mm). Touch am/pm/24 to select type of time display. Touch checkmark to accept and return to Date and Time screen.

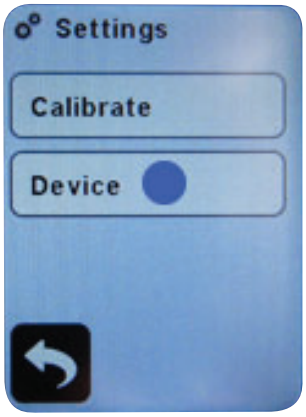
Select option:

Back moves to Device screen; changes accepted.

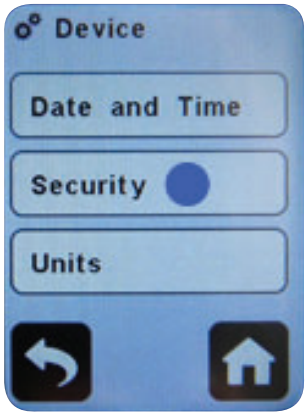
Home moves to Home screen, changes accepted.

Changing Security (Lock Out) and Auto-Dim

1. Touch Settings soft key.



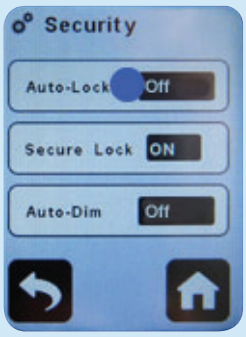
2. Touch Device.



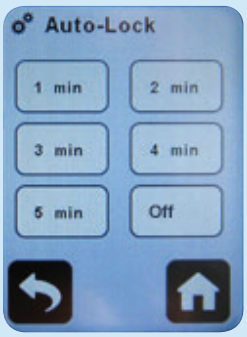
3. Touch Security to access security screen.

Auto-Lock

Auto-Lock prevents accidental changes to pump status during sampling by requiring a simple **1 2 3 4 unlock code** to be entered to unlock the touch screen and power button.



1. Touch Auto-Lock to access Auto-Lock options* *(displayed setting in effect)*.



2. Touch desired Auto-Lock option. Pump will return to Security screen. Selection displays.

Select option:

Back moves to Device screen; changes accepted.

Home moves to Home screen, changes accepted.

or

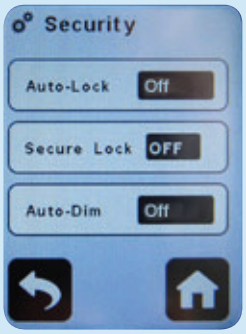
Touch another security soft key.

* ***Note:*** *Running a Timed Sample (even if Auto-Lock is set on Off) will always initiate Auto-Lock (see Operation, Setting Up and Running a Timed Sample).*

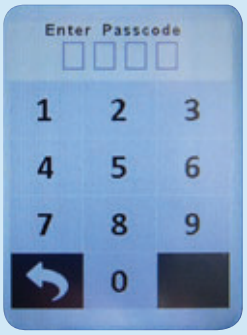
Secure Lock

Secure Lock prevents tampering during sampling by requiring a **user-set passcode** to be entered to unlock the touch screen and power button.

Changing Secure Lock from OFF to ON:



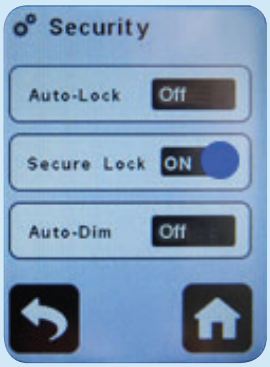
1. Secure Lock displays OFF. Touch Secure Lock to turn ON *(displayed setting in effect).*



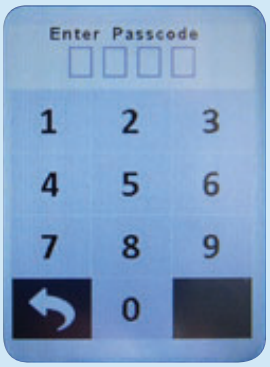
2. Enter your own four-digit passcode.

3. **Re-enter the same four-digit passcode** to confirm and return to Security screen. Secure Lock displays as ON.

Changing Secure Lock from ON to OFF:



1. Secure Lock displays ON. Touch Secure Lock to turn OFF. *(displayed setting in effect).*



2. **Enter the previously set four-digit passcode or master passcode (8472)** and return to Security screen. Secure Lock displays as OFF.

Select option:

Back moves to Device screen; changes accepted.

Home moves to Home screen, changes accepted.

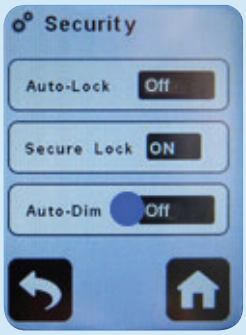
or

Touch another security soft key.

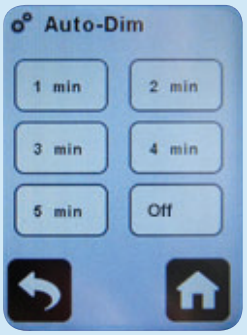
Note: Forgot the Secure Lock passcode? *Use master passcode 8472 to unlock the screen and power button.*

Auto-Dim

Auto-Dim saves battery power by automatically dimming the touch screen backlighting within a set amount of time after the Run soft key is touched.



1. Touch Auto-Dim to access options *(displayed setting in effect).*



2. Touch desired Auto-Dim option. Pump will return to Security screen. Selection displays.

Select option:

Back moves to Device screen; changes accepted.

Home moves to Home screen, changes accepted.

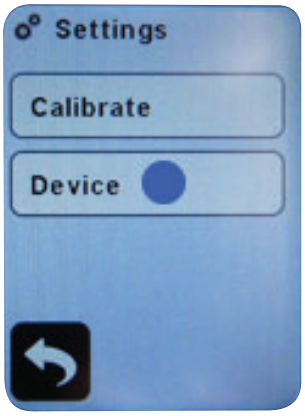
or

Touch another security soft key.

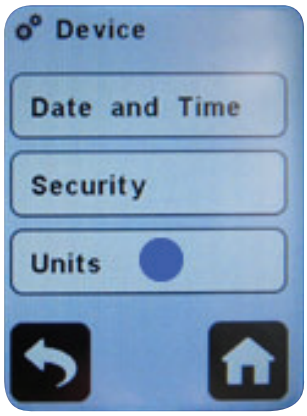
Note: *To restore backlighting to 100% at any time, simply touch the screen.*

Changing Display Units

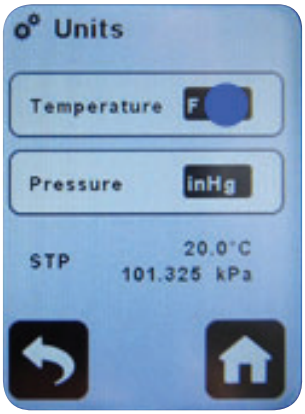
1. Touch Settings soft key.



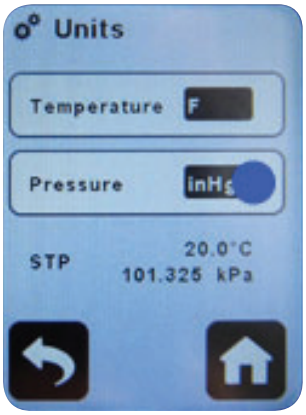
2. Touch Device.



3. Touch Units to access Units screen.



4. Touch Temperature to toggle F (Fahrenheit) and C (Celsius) *(displayed setting in effect).*



5. Touch Pressure to toggle mbar (millibars), mmHg (millimeters of mercury), and inHg (inches of mercury) *(displayed setting in effect).*

Select option:

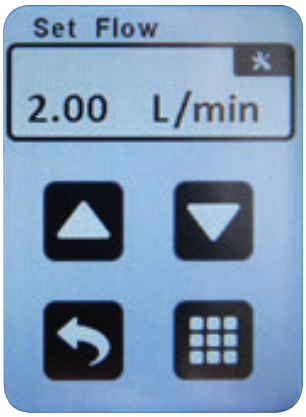
Back moves to Device screen; changes accepted.

Home moves to Home screen, changes accepted.

Note: *STP criteria are displayed on this screen but can only be changed using DataTrac Pro Software. See DataTrac Pro Software at www.skcinc.com, search DataTrac Pro.*

Operation

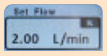
Setting Flow Rate



Select option:

Checkmark accepts set flow and returns to Home screen.

Back moves to Home screen without accepting set flow.



Manual Cal (flow rate display/Manual Cal soft key) accesses Manual Cal screen *(see Calibrating Flow Rate from 1 to 5 L/min, Manual Calibration to set up calibration train).*

1. Touch flow rate display (Set Flow soft key) on a pump that is **not** running. Pump will run and display Set Flow screen.

2. Touch up/down arrow soft keys* to adjust flow rate **or** touch keypad soft key to enter desired flow rate and proceed to *Manual Calibration*.

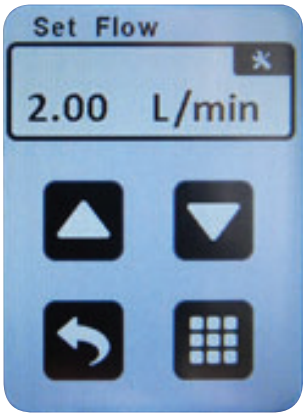
* ***Note:*** *Using the up/down arrow soft keys to adjust flow will allow access to manual calibration from this screen. Touch flow rate display (Manual Cal soft key – tools icon in upper right corner).*

Tip *Tapping up and down arrow soft keys increments/decrements flow rate in steps of 1. Touching and holding the soft keys speeds increment/decrement to the next 10 and then proceeds in steps of 10.*

Calibrating 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 calibration and sampling.*
- *Choose from Manual or CalChek Single calibration methods.*

Manual Calibration



1. Touch flow rate display (Set Flow soft key) on a pump that is **not** running. Pump will run and display Set Flow screen.

2. Touch up/down arrows to set desired flow rate *(see Setting Flow Rate)*. Allow pump to run for five minutes. Touch flow rate display (Manual Cal soft key – tools icon in upper right corner).

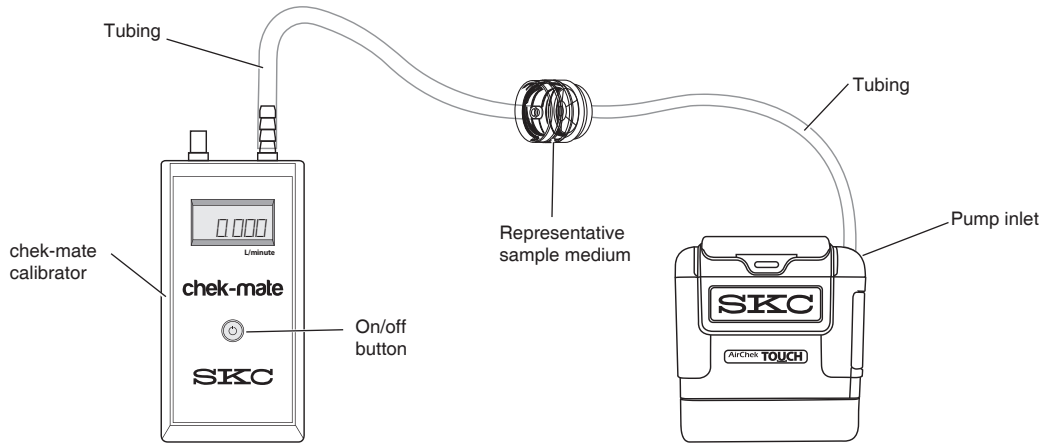
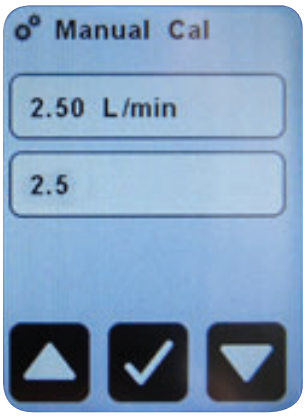
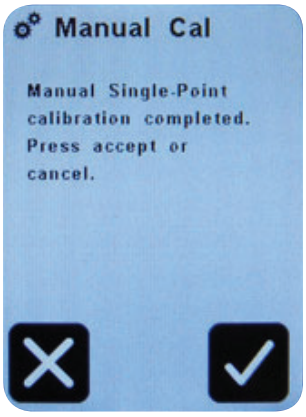


Figure 7. *Calibration Train (1 to 5 L/min)*

3. Set up a calibration train. *See Figure 7.*



4. Touch up and down arrow keys to adjust calibration based on flow displayed on calibrator. Touch checkmark to move to Manual Cal Completed screen.



5. Touch checkmark to accept calibrated flow; return to Home screen. Touch X to cancel flow adjustment; return to Home screen.

6. Disconnect pump from representative method-specified sampling medium and calibrator and proceed to *Sampling*.

Alternative Manual Calibration Access

Home → Settings → Calibrate → Manual → Connect calibration train → checkmark → enter flow rate → checkmark → use arrows to adjust flow → checkmark → checkmark to accept or X to cancel → Home screen

CalChek Single Calibration

CalChek Single Calibration requires a chek-mate Calibrator with CalChek (Cat. No. 375-0550N), Standard Charging Cradle (Cat. No. 220-800) or Charging e-Cradle (Cat. No. 220-900), and CalChek Communication Cable (Cat. No. 375-200). CalChek Single calibration is performed **with** representative sampling medium in line.

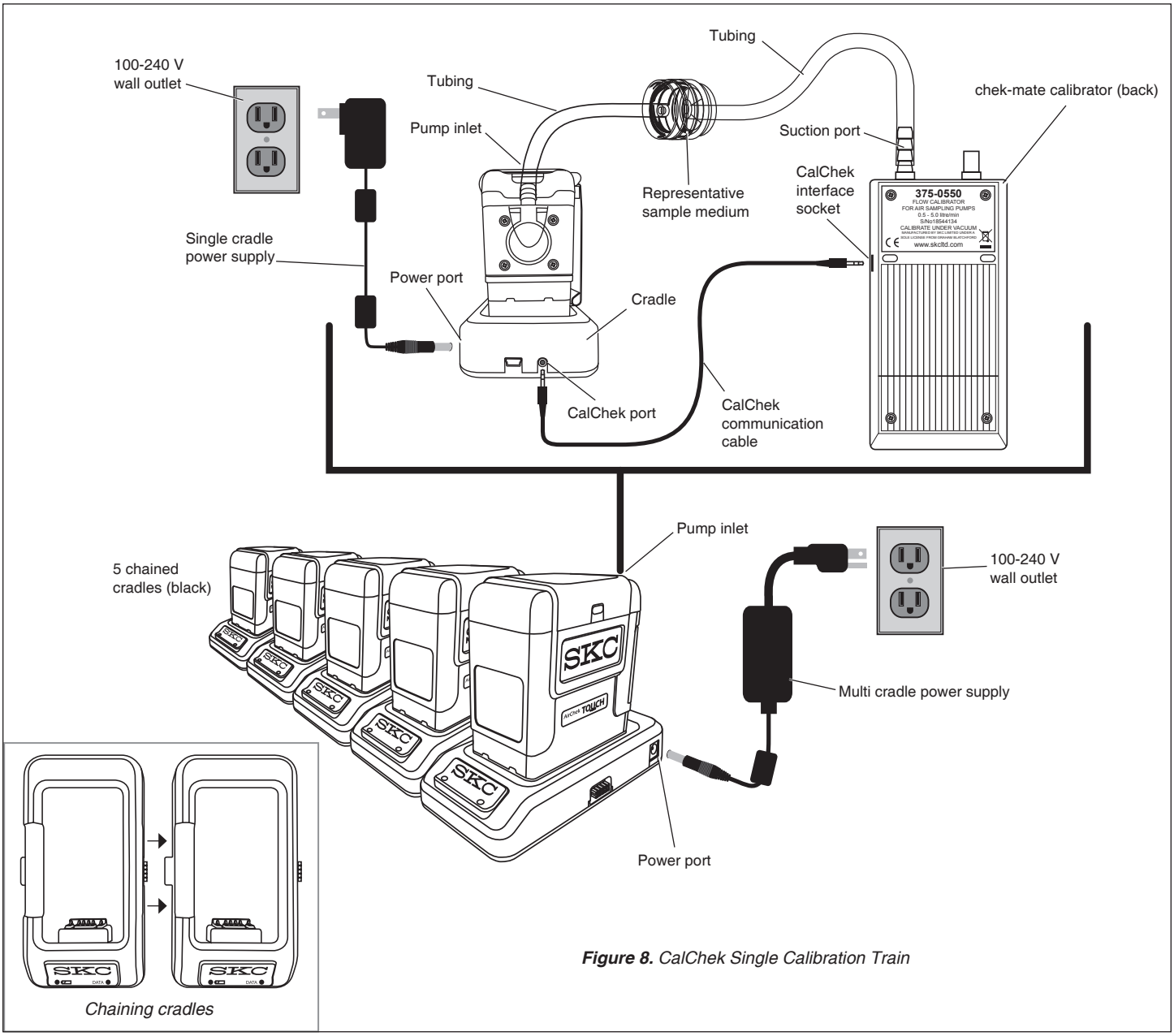


Figure 8. *CalChek Single Calibration Train*

Preparing the Cradle(s)

1. Install a Single Cradle Power Supply (Cat. No. 220-600) onto a Standard Charging Cradle or Charging e-Cradle. If chaining multiple cradles, install a Multi Cradle Power Supply (Cat. No. 220-700) on a chain of up to 5 Standard Cradles or up to 4 Standard Cradles and 1 e-Cradle. *See Figure 2.* ***Note:*** *Calibration can be performed on only one pump at a time, even in chain of multiple pumps.*

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

Preparing the Pump

1. Touch Run soft key on touch screen and run pump for five minutes.

2. Set up a calibration train *(see Figure 8)*.

3. Touch Stop soft key.

Preparing the chek-mate Calibrator

Press and hold on/off button on the front of the chek-mate *(see Figure 7)* to turn on power. The LCD screen will cycle through the startup messages, "On" followed by the upper limit of the flowmeter range, "5.0 L," and will then indicate the current flow rate or "_ _ _ _" if there is no airflow or the flow rate is below the minimum display value.

Preparing the CalChek Communication Cable

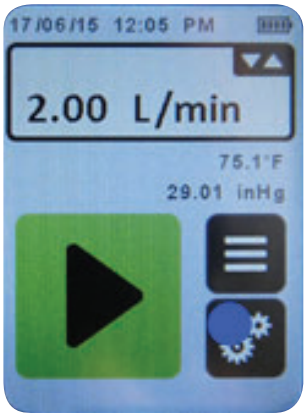
Connect the CalChek Communication Cable to the chek-mate calibrator and pump charging cradle *(see below)*.

1. Install one connector end of cable into CalChek interface socket on chek-mate.

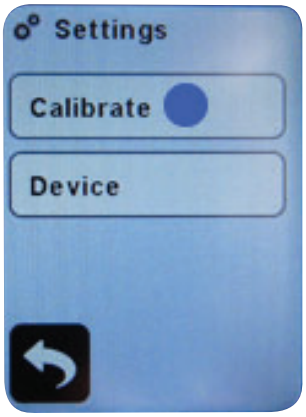
2. Insert other connector end of cable into CalChek port on back of charging cradle (e-Cradle shown).

Initiating CalChek Single Automatic Flow Calibration

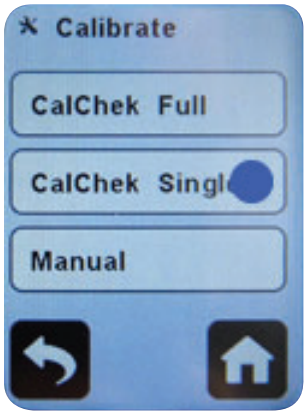
See pages 26-28 for CalChek Full Calibration to be used following pump maintenance or repair.



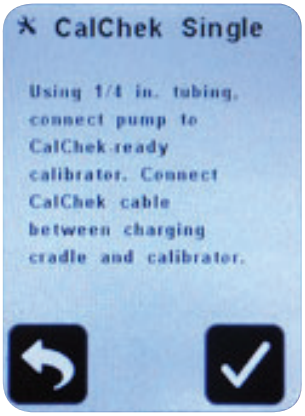
1. Touch Settings soft key.



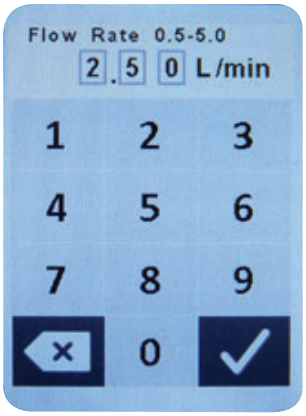
2. Touch Calibrate.



3. Touch CalChek Single.



4. Ensure calibration train is in place *(see Figure 8)*. Touch checkmark to accept CalChek selection.



5. Enter desired flow rate. Touch checkmark to accept. Pump will run.

6. Pump will calibrate automatically. Top box on screen displays set flow, bottom box displays flow rate reading from chek-mate. ***Note:*** *Calibration can be cancelled at any time by touching Home.*

   a. **Completion:** CalChek Single screen "CalChek Single-Point calibration completed successfully." Touch checkmark to accept and return to Home screen.

   b. **Failure:** CalChek Single screen "CalChek Single-Point calibration failed: error –xx [explanation of error]. Check xxx." Touch Back to repeat calibration or touch X to exit calibration and return to Home screen.

7. Following successful calibration:

   a. **If calibrating a single pump:** Replace sample medium with a fresh, unexposed sample medium, remove pump from cradle, remove CalChek Communication Cable from cradle, and proceed to *Sampling*.

   b. **If calibrating multiple pumps in chained cradles:** ***Note:*** *Each pump in chain is calibrated individually.* On next pump/cradle in chain, install tubing connected to representative sample medium on pump inlet and insert CalChek Communication Cable into CalChek port on cradle. Set flow rate and perform calibration procedure *(see Steps 1 through 6 above.)* Repeat for each pump/cradle in the chain. Once all pumps are calibrated, remove them from cradles and remove CalChek Communication Cable from last cradle. Replace sample medium with a fresh, unexposed sample medium and proceed to *Sampling*.

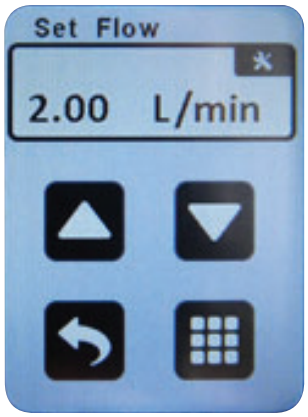
Calibrating Flow Rate from 5 to 500 ml/min

- *Allow pump to equilibrate after moving it from one temperature extreme to another.*
- *Charge pump battery completely before calibration and sampling.*
- *Use Manual calibration only.*
- *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 CPC and holder operation.*
- *Calibrate/verify pump flow rate before and after each sampling operation using the tube holder and pump to be used for sampling.*

Preparing Sorbent Tube(s)

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

Preparing the Pump

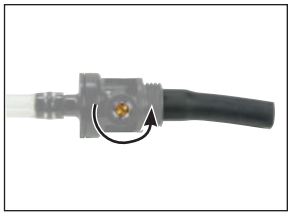


1. Touch flow rate display (Set Flow soft key) on a pump that is **not** running. Pump will run and display Set Flow screen.
2. Touch up/down arrows to set pump flow rate *(see Setting Flow Rate)*.
   a. **For single-tube sampling:** Set flow rate to 1.5 L/min
   b. **For multiple-tube sampling:** Set flow rate to the **sum of all flows + 15%.**
   Note: *Do not exceed 500 ml/min flow rate per tube for multiple-tube sampling.*
3. Allow pump to run for five minutes and then touch flow rate display (Manual Cal soft key – tools icon in upper right corner).

Alternative Manual Calibration Access

Home → Settings → Calibrate → Manual → Connect calibration train → checkmark → enter flow rate → checkmark → adjust flow with flow adjust screw on holder → checkmark → checkmark to accept or X to cancel → Home

Preparing the All-in-One (single-tube sampling)



1. On the All-in-One adjustable tube holder, insert an opened representative tube (arrow on tube pointing toward the pump) into the rubber sleeve on the port. *See Figure 9.*

2. Use a small flat-head screwdriver to turn counterclockwise the brass flow adjust screw directly beneath the port.

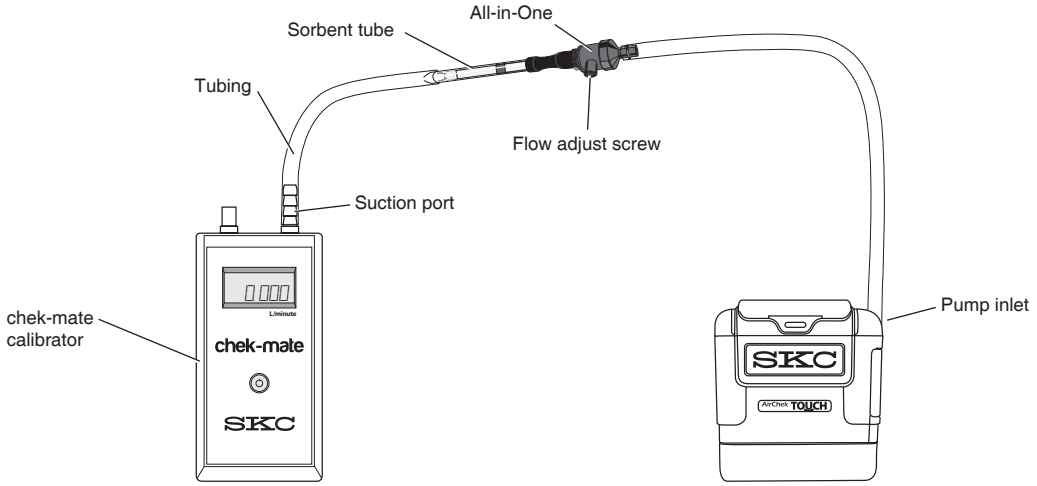


Figure 9. *Calibration Train (5 to 5000 ml/min) for Single Tube*

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

1. On the tube holder, insert an opened representative tube (arrow on tube pointing toward the pump) into the rubber sleeve of a port. Repeat for the desired number of tube samples. *See Figure 10.*

2. Place an unopened (inactive) tube in any unused port to "seal" it.

3. Label ports on the Adjustable Low Flow Tube Holder to match tube labels.

4. Use a small flat-head screwdriver to turn counterclockwise the brass flow adjust screw directly beneath the port holding the first active tube to be calibrated.

Setting Up the Calibration Train

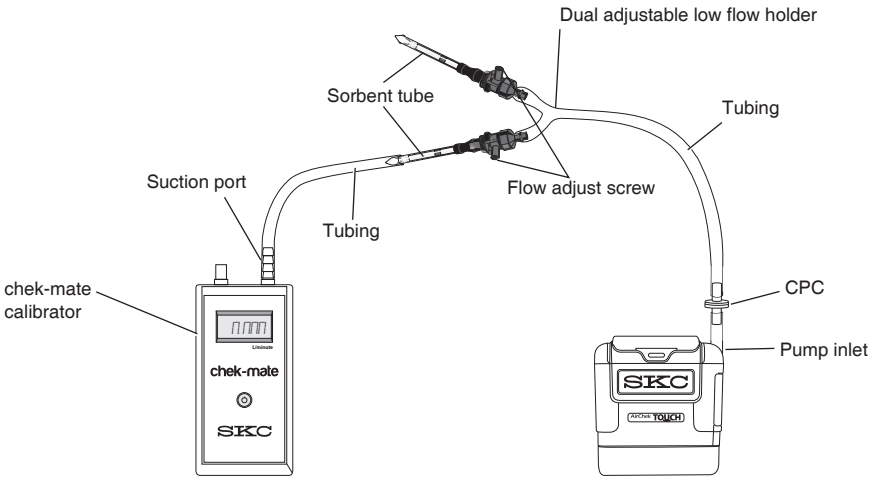


Figure 10. *Calibration Train (5 to 500 ml/min) for Multiple Tubes*

Set up a calibration train, connecting the calibrator to the single sorbent tube or first of multiple sorbent tubes (Figures 9 and 10).

Calibrating 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 calibrator. ***Note:*** *This adjustment will change the flow rate displayed on the calibrator, not on the pump.*

2. Once flow is calibrated for the tube, it is recommended practice to re-check the flow rate before removing the tube. Any adjustment should be minimal.

3. When finished, touch the checkmark on the pump touch screen to move to the Manual Cal Completed screen.

4. The Manual Cal screen displays "Manual Single-point calibration completed. Press accept (checkmark) or cancel (X)" and return to the Home screen.

5. Disconnect the pump from the representative sampling medium and calibrator and proceed to *Sampling.*

Calibrating Pump Flow Rate with the Dual, Tri, Or Quad Adjustable Low Flow Tube Holder

Note: *See appropriate adjustable low flow tube 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 calibrator. ***Note:*** *This adjustment will change the flow rate displayed on the calibrator, not on the pump.*

2. Remove calibrator 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 to be calibrated and repeat Step 1.

3. Repeat Steps 1 and 2 for each remaining active tube.

4. Once flow is calibrated for each active tube, it is recommended practice to re-check the flow rate through each tube before removing representative tubes. Any adjustment should be minimal.

5. When finished, touch the checkmark on the pump touch screen to move to the Manual Cal Completed screen.

6. The Manual Cal screen displays "Manual Single-point calibration completed. Press accept (checkmark) or cancel (X)" and return to the Home screen.

7. Disconnect the pump from the representative sampling medium and calibrator and proceed to *Sampling.*

Sampling

Setting Up a Sampling Train

- *Allow pump to equilibrate after moving it from one temperature extreme to another.*
- *Charge pump battery completely before calibration 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, calibrate/verify pump flow rate before and after each sampling operation using the tube holder and pump used for sampling.*

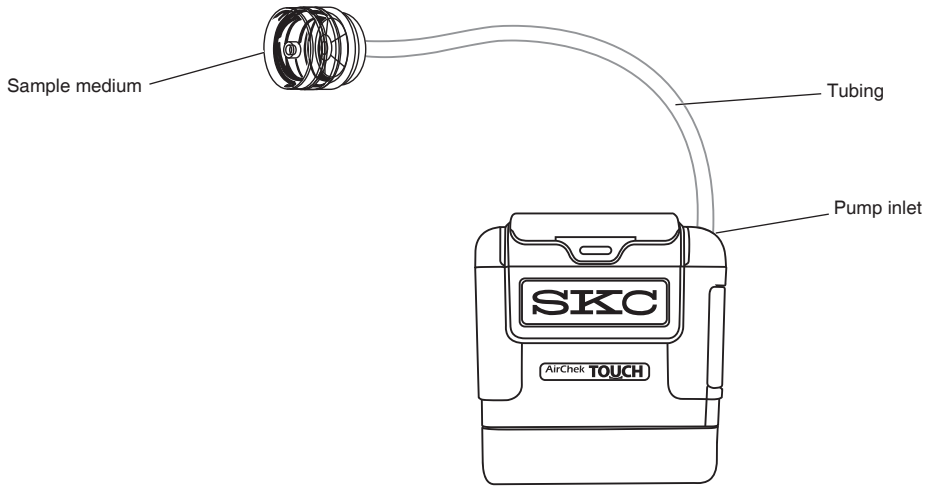


Figure 11. *High Flow Sampling Train*

Following calibration, replace representative sampling media used for pre-sample calibration with unexposed method-specified media for sampling.

Manual Sampling

1. Set pump flow rate to a method-specified flow *(see Setting Flow Rate)*.

2. Calibrate pump flow rate using representative sampling media *(see Calibrating Flow Rate from 1 to 5 L/min or Calibrating Flow Rate from 5 to 500 ml/min)*.

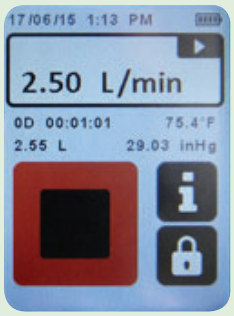
3. Set up sampling train *(see Figure 11)*.

4. Touch Run soft key to start sample. Record sample start time.

Options/Modes During Sampling

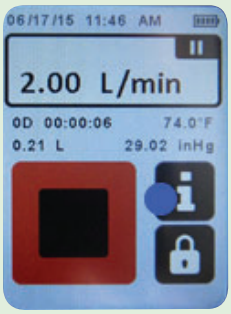
Pause/Resume

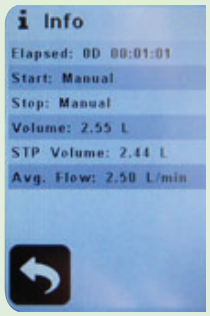
To pause sample: *Touch Flow Rate display/Pause soft key. Pump stops; run time data* ***freezes****.*



To resume sample: *Touch Flow Rate display/Resume soft key. Pump runs; run time data resumes accumulation.*

Information

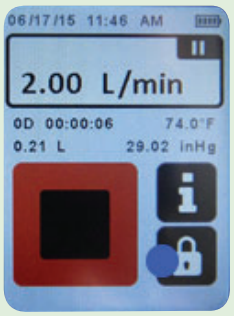




Touch i soft key to access current run time data.

In addition to accumulated volume, STP volume is displayed. STP or other standard criteria can be selected in DataTrac Pro Software. See DataTrac Pro Software at www.skcinc.com, search DataTrac Pro.

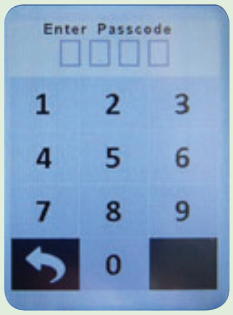
Lock Out



To lock screen: *Touch Lock soft key. The Lock screen displays.*

To remove lock: *Touch Lock screen.*

a. *Enter 1 2 3 4 as prompted at top of screen.*



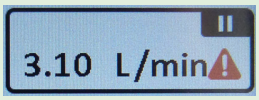
b. ***If Secure Lock is enabled,*** *enter user-set passcode (secure lock) or universal passcode 8 4 7 2*

Fault Mode

Faults can occur when the pump is unable to compensate due to insufficient battery charge, overloaded sample media, or kinked tubing.

Low battery

- *Pump stops/powers off without warning (time varies with load).*
- *Run time data is retained in history (see Accessing History).*
- *Charge pump battery (see Figure 2).*
- *Red fault icon displays when pump is turned on. Fault icon will disappear during subsequent sampling.*



Flow fault

If fault is sustained longer than 15 seconds:

- *Pump status LEDs flash red/green*
- *Pump stops running*
- *Red fault icon displays*
- *Pump attempts auto-restart every 15 seconds up to 5 times.*
  a. ***If flow is corrected during auto-restart,*** *pump will continue sample and data accumulation.*
  b. ***If flow is <u>not</u> corrected during auto-restart,*** *pump will stop and run time/volume display will reset to zero. See Accessing History for run time data.*

Note: *Faults display in pump history, but cause of fault is not indicated.*

5. Touch Stop soft key to stop sample.
   Accumulated time and volume will reset.

6. Record sample stop time, remove sample medium, and cap.

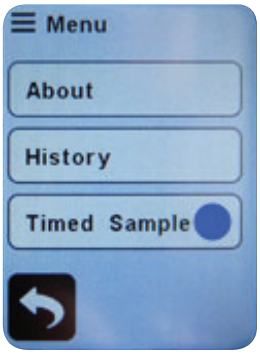
7. Reinstall representative sample medium and perform post-sampling calibration *(see Calibrating Flow Rate)*.

Setting Up and Running a Timed Sample

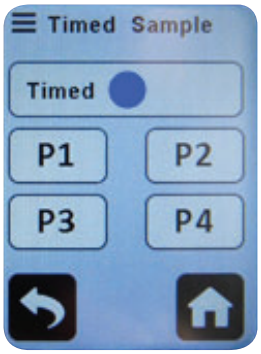
1. Calibrate pump flow rate using representative sampling medium *(see Calibrating Flow Rate)*.

2. Set up sampling train *(see Figure 11)*.

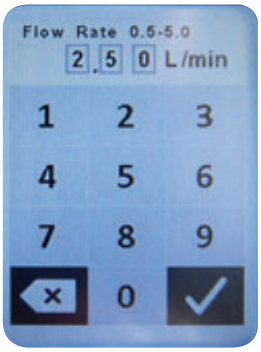
3. Touch Menu soft key.



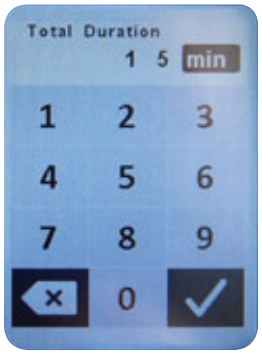
4. Touch Timed Sample.



5. Touch Timed to set up a quick timed sample.



5.a Enter method-specified flow rate. Touch checkmark to accept.



5.b Enter total sample time in minutes. Touch checkmark to accept. Timed Sample screen displays.

Select option:

Run starts sampling. Screen will lock automatically (regardless of security settings). *See Options During Sampling.*

Edit moves to Flow Rate screen; allows flow rate and total duration to be changed. ***Note:*** *Touch Erase soft key on each screen to erase existing values and enter new values.*

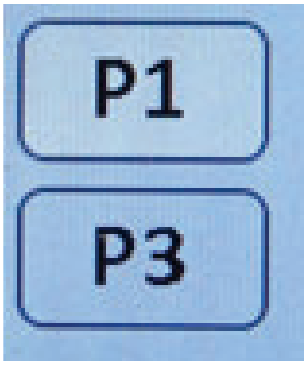
Back moves to Total Duration screen.

Home moves to Home screen without accepting the timed sample.

Setting Up Timed Sample Presets

(Includes Continuous and Intermittent Sampling)

An alternative to programming a quick timed sample before each run is to save sample runs that are performed on a regular basis as timed sample presets (P1, P2, P3, or P4). Presets that are already programmed will display with a white background and can be edited in touch screen menus or DataTrac Pro Software.

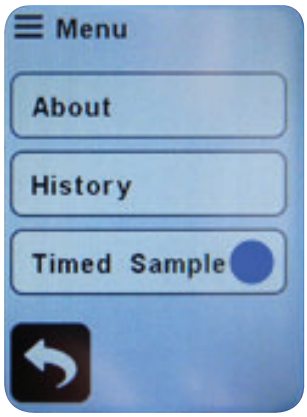


Top: Programmed Preset (white background)

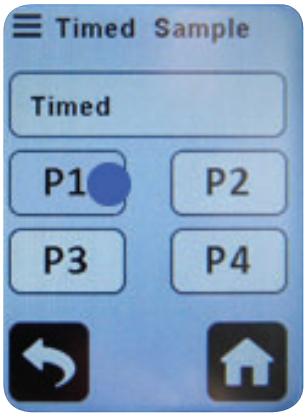
Bottom: Empty Preset

Creating a New Timed Sample Preset

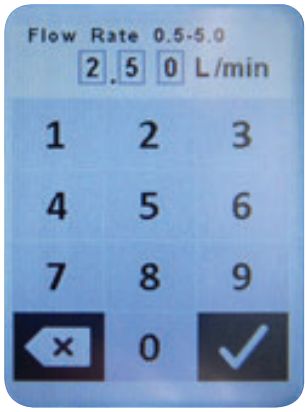
1. Touch Menu soft key.



2. Touch Timed Sample.



3. Touch P1 to set up a timed sample preset.



3.a Enter method-specified flow rate. Touch checkmark to accept.

3.b i. **To program a continuous sample:** Touch Continuous

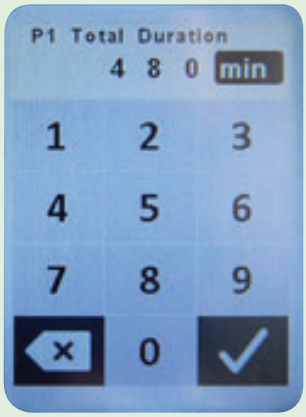
ii. **To program an intermittent sample:** Touch Intermittent

Timed Sample Preset Options

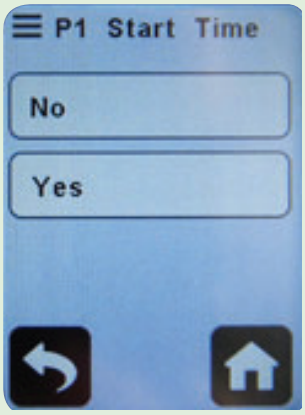
Continuous Sample

Enter the total duration of the sample run and specify a start date, if desired.

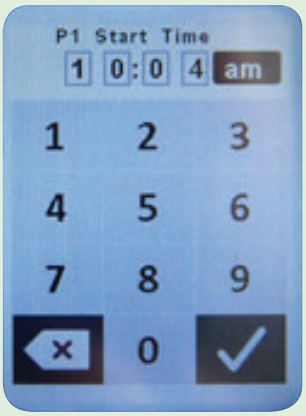
1. Touch Continuous soft key.



2. Enter total sample time in minutes. Touch checkmark to accept. P1 Start Time screen displays.



3. a. **To bypass a start time:** Touch No. Preset 1 screen displays.
   b. **To enter a start time:** Touch Yes. P1 Start Time screen displays.



3.b i. Enter a start time (hh:mm), touch am/pm/24 hour to select type of time display, and touch checkmark to accept.

Select option:

Date touch to edit start date.

Run starts sampling. Screen will lock automatically (regardless of security settings). *See Options During Sampling.*

Back moves to Timed Sample screen.

Edit moves to Flow Rate screen; allows flow rate, type of sample, total duration, and start time to be changed. ***Note:*** *Touch Erase soft key on each screen to erase existing values and enter new values.*

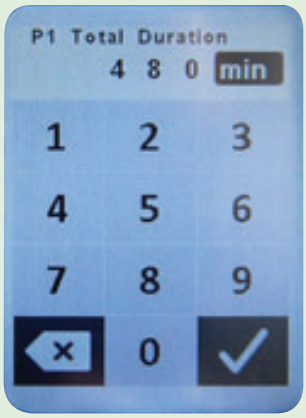
Home moves to Home screen.

Timed Sample Preset Options - continued

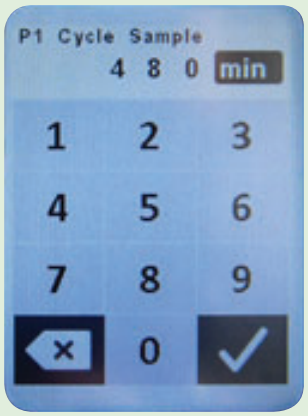
Intermittent Sample

Enter the total duration of the sample run, and then specify number of minutes the pump is to run and number of minutes the pump is to pause during a single cycle. The AirChek TOUCH will calculate the number of run/pause cycles and the estimated volume. ***Note:*** *During calculations, the pump may make slight adjustments to the total duration to fit in the desired number of run/pause cycles.*

1. Touch Intermittent.

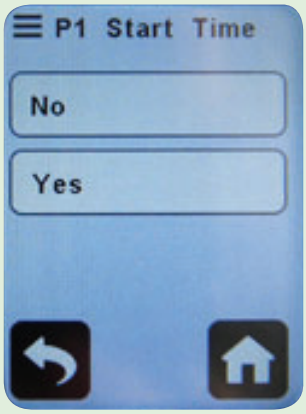


2. Enter total duration of sample run in minutes. Touch checkmark to accept. P1 Cycle Sample screen displays.

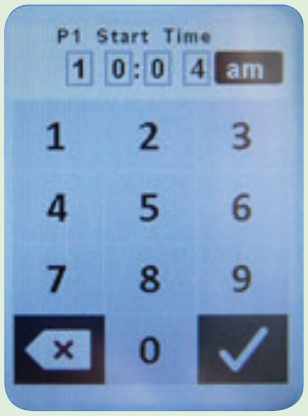


3. Enter number of minutes pump is to actively sample during each cycle. Touch checkmark to accept. P1 Cycle Pause screen displays.

4. Enter number of minutes pump is to pause between times of active sampling. Touch checkmark to accept. P1 Start Time screen displays.



5. a. **To bypass setting a start time:** Touch No. Preset 1 screen displays.
   b. **To enter a start time:** Touch Yes. P1 Start Time screen displays.



5.b i. Enter a start time (hh:mm), touch am/pm/24 hour to select type of time display, and touch checkmark to accept.

Select option:

Date touch to edit start date.

Run starts sampling. Screen will lock automatically (regardless of security settings). *See Options/Modes During Sampling.*

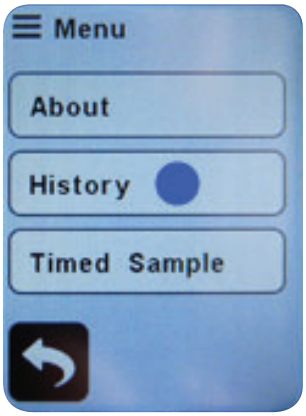
Back moves to Timed Sample screen.

Edit moves to Flow Rate screen; allows flow rate, type of sample, total duration, cycle sample, cycle pause, and start time to be changed. ***Note:*** *Touch Erase soft key on each screen to erase existing values and enter new values.*

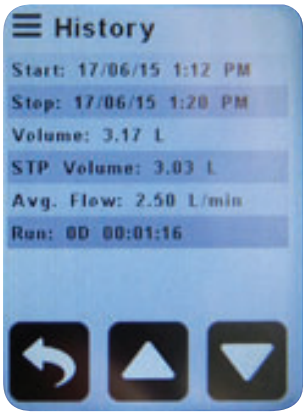
Home moves to Home screen.

Accessing History

1. Touch Menu soft key.



2. Touch History. A short history of the latest sample run displays.



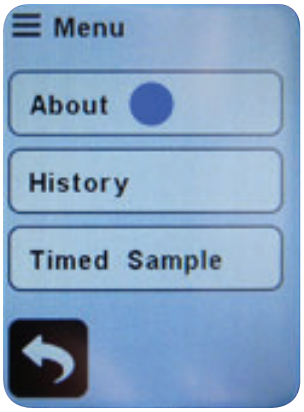
3. Touch up/down arrows to scroll through a maximum of 1042 history records.

Once the maximum number of records is reached, old records will be overwritten without warning. To avoid loss of data, upload sampling history to PC using DataTrac Pro Software on a weekly basis.

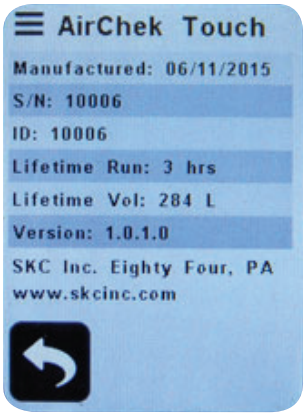
In addition to accumulated volume, STP volume is displayed. STP or other standard criteria can be selected in DataTrac Pro Software. *See DataTrac Pro Software at www.skcinc.com, search DataTrac Pro.*

Accessing Pump Information

1. Touch Menu soft key.



2. Touch About.



3. Pump information displays.

Using Pump with PC and DataTrac Pro Software

The AirChek TOUCH Sample Pump communicates with a PC via e-Cradle and DataTrac Pro Software. DataTrac Pro Software is available as a download *(requires Internet connection)*. A DataTrac Pro Hardware Accessory Kit (Cat. No. 877-93) is available that contains an e-Cradle, single power supply, and USB 2.0A to Mini-B cable for connection to PC.

1. Check system requirements on PC.

2. Create a Communication Train *(Figure 12)*. Turn **on** pump(s).

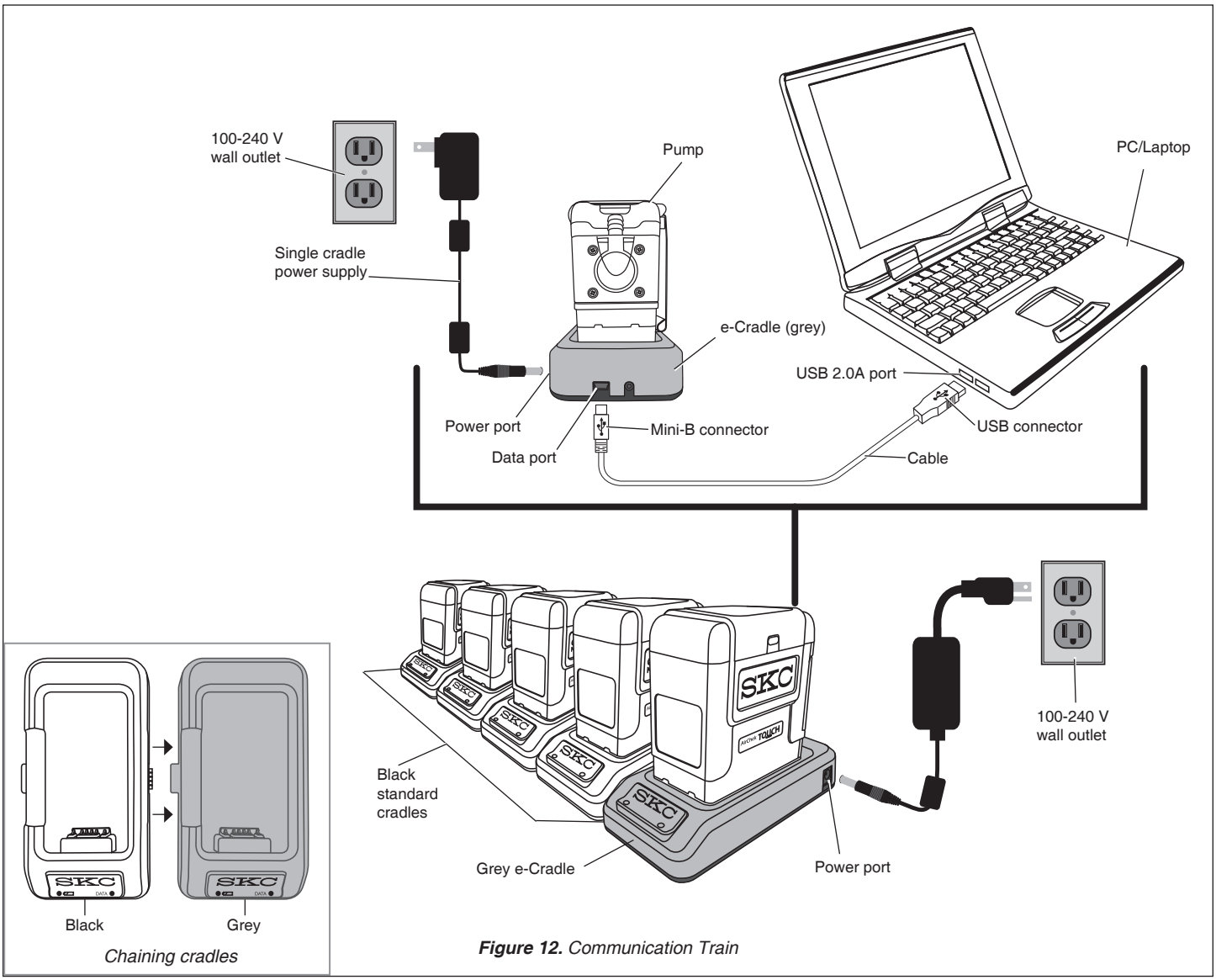


Figure 12. *Communication Train*

Ensure pump(s) is powered and turned on before download.

3. Browse www.skcinc.com/catalog/datatrac/DataTracProACTSetup.exe to download software.

4. Install DataTrac Pro on PC.

See DataTrac Pro Software User Manual for detailed installation and operation.

Maintenance

Replacing the Battery Pack

Review Notes and Cautions on page 3 before proceeding.

Turn pump off before removing battery pack.

1. Turn the pump off by pressing and holding briefly the recessed power button on the side (screen turns off).
2. Remove the existing battery pack.
   a. Use a 2.5-mm hex driver (Allen wrench) to loosen two screws on bottom of battery pack housing.
   b. Pull battery pack housing away from pump case.
   c. If replacing battery pack with a new battery pack (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 or waste regulations.
3. Install a new battery pack or reinstall existing battery pack.
   a. Align battery pack with bottom of pump case. ***Note:*** *The connector on top of battery pack should align with protruding power control board contacts on bottom of pump case.*
   b. Press the two parts together until snug.
   c. Use a 2.5-mm hex driver (Allen wrench) to tighten two screws on bottom of battery pack housing. Tighten screws in alternating fashion.
   d. Charge the new battery pack completely before use; if reinstalling existing battery pack, ensure that battery is charged to at least 25% (battery status icon on Home screen 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 cover 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 *(Figure 1)*.
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.

Performing a Full Calibration (Reset Compensation System)

CalChek Full Calibration, also known as CalChek Full or Multiple-point Calibration, is used to calibrate the pump compensation system across the range of operational flows following maintenance/repair. Full Calibration requires a chek-mate Calibrator with CalChek (Cat. No. 375-0550N), Standard Charging Cradle (Cat. No. 220-800) or Charging e-Cradle (Cat. No. 220-900), CalChek Communication Cable (Cat. No. 375-200), and Pulsation Dampener (Cat. No. 375-100). CalChek Full Calibration is performed **without** a sampling medium in line; the Pulsation Dampener is used in place of the sampling medium. *See Figure 13.*

- *Allow pump to equilibrate after moving it from one temperature extreme to another.*
- *Charge pump battery completely before CalChek Full Calibration.*

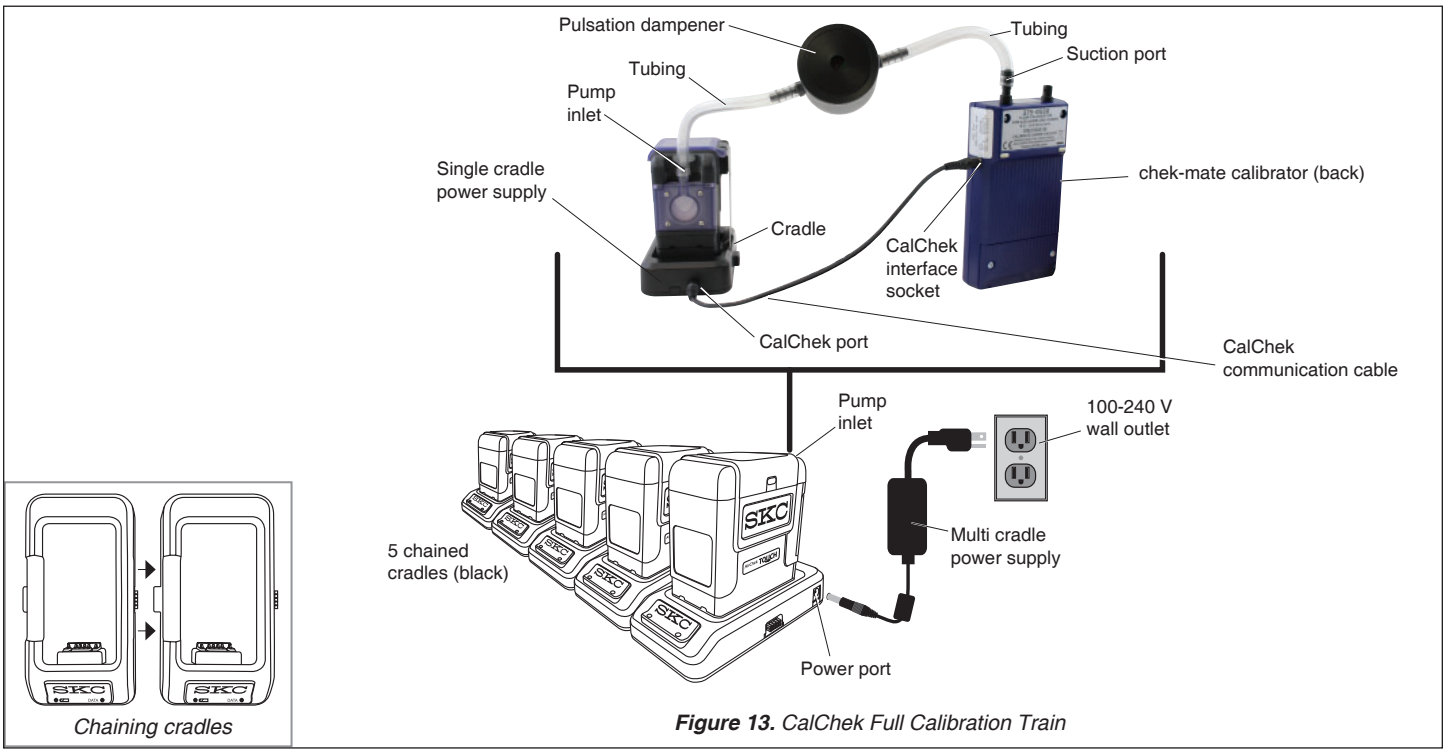


Figure 13. *CalChek Full Calibration Train*

Preparing the Cradle(s)

1. Install a Single Cradle Power Supply (Cat. No. 220-600) onto a Standard Charging Cradle or Charging e-Cradle. If chaining multiple cradles, install a Multi Cradle Power Supply (Cat. No. 220-700) on a chain of up to 5 Standard Cradles or up to 4 Standard Cradles and 1 e-Cradle. *See Figure 2.* ***Note:*** *Calibration can be performed on only one pump at a time.*

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

Preparing the Pump

1. Touch Run soft key and run pump for five minutes.

2. Set up a calibration train *(see Figure 13)*.

3. Touch Stop soft key.

Preparing the chek-mate Calibrator

Press and hold on/off button on the front of the chek-mate calibrator *(see Figure 7)* to turn power on. The LCD screen will cycle through the startup messages, "On" followed by the upper limit of the flowmeter range, "5.0 L," and will then indicate the current flow rate or "_ _ _ _" if there is no airflow or the flow rate is below the minimum display value.

Preparing the CalChek Communication Cable

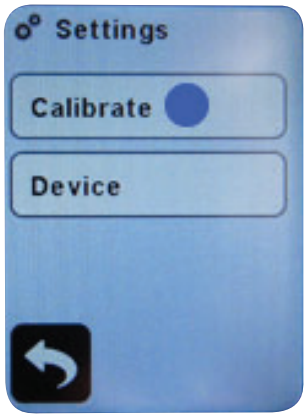
Connect CalChek Communication Cable to the chek-mate calibrator and pump charging cradle *(see below)*.

1. Install one connector end of cable into CalChek interface socket on chek-mate.

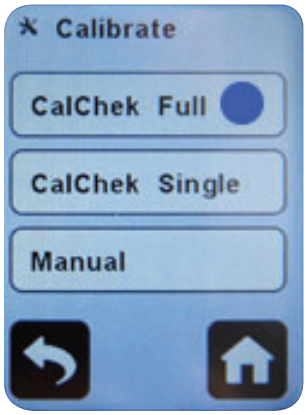
2. Insert other connector end into CalChek port on back of charging cradle (e-Cradle shown).

Initiating CalChek Full Calibration

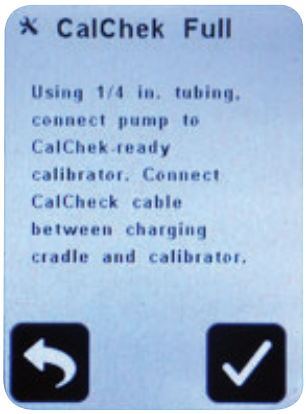
1. Touch Settings soft key.



2. Touch Calibrate.



3. Touch CalChek Full.



4. Ensure calibration train, **without** sampling medium and **with** Pulsation Dampener in line, is in place *(see Figure 13)*. Touch checkmark to accept CalChek selection.

5. Pump calibrates automatically.

Data light on cradle flashes alternately green and amber. Top box on screen displays a progress bar, bottom box displays flow rate reading from chek-mate. ***Note:*** *CalChek Full can take several minutes to complete. Calibration can be cancelled at any time by touching Home.*

a. **Completion:** CalChek Full screen "CalChek Full calibration completed successfully." Touch checkmark to accept and return to Home screen.
b. **Failure:** CalChek Full screen "CalChek Full calibration failed: error –xx [explanation of error]. Check xxx." Press Back to repeat calibration or X to exit calibration and return to Home screen.

6. Following successful calibration, remove CalChek Communication Cable from cradle.

Troubleshooting

Troubleshooting Guide

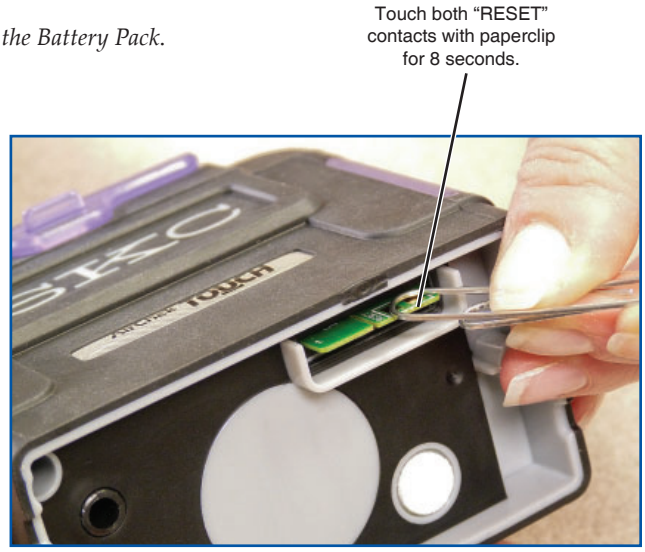
Issue	Possible Solutions
My pump is in an e-Cradle with appropriate power supply and communication cable, but will not communicate with my PC	1. Ensure DataTrac Pro is installed properly on PC. 2. Re-launch DataTrac Pro Software. 3. Check cable connections. 4. Check for a firm connection in chained pump cradles. 5. Ensure CalChek Communication Cable is removed from cradle or chain of cradles.
My touch screen is frozen and/or power button will not respond.	Reset the pump *(see Resetting the Pump Manually).*

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.

Resetting the Pump Manually

If pump will not respond to touch screen commands, reset the pump microprocessor manually.

1. Remove battery pack, and then reinstall the battery pack. *See Replacing the Battery Pack.*
2. Touch screen.
   a. If screen is responsive, continue pump operation.
   b. If screen remains unresponsive, proceed to Step 3.
3. Remove battery pack *(see Replacing the Battery Pack)*. Lay pump case on a flat surface with the AirChek TOUCH logo facing upward.
4. Locate the two protruding power control board contacts on bottom of pump case.
5. Rest a metal paperclip across the 2 control board contacts labeled "RESET" for at least 8 seconds, and then remove paperclip.



Do not use a sharp object on contacts. Do not damage contacts.

6. Reinstall battery pack immediately *(see Replacing the Battery Pack); check pump responsiveness.* ***Note:*** *Ensure that battery is charged at least 25% (battery status icon on Home screen should show two bars).*

An SKC logo screen with firmware version number displays when pump is powered on initially after a manual reset or firmware upgrade.

Pump Service

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

Accessories/Replacement Parts

Accessories	Cat. No.
Standard Charging Cradle, *requires power supply, see below*	**220-800**
Enhanced Charging Cradle (e-Cradle), includes USB cable, for use with free DataTrac Pro Software download, *requires power supply, see below*	**220-900**
Single Cradle Power Supply, for use with one charging cradle, 100-240 V	**220-600**
Multi Cradle Power Supply, for use with 2 to 5 charging cradles, 100-240 V	**220-700**
DataTrac Pro Hardware Accessory Kit, includes e-Cradle, single power supply and USB cable, for use with free DataTrac Pro Software download	**877-93**
AirChek TOUCH Pump and DataTrac Pro Software are required.	
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**
chek-mate Calibrator with CalChek, 0.50 to 5 L/min, includes 9-volt alkaline battery, CalChek automatic calibration, and NIST-traceable calibration certificate	**375-0550N**
CalChek Communication Cable, *required for CalChek calibration*	**375-200**
Pulsation Dampener, *required for CalChek Full Calibration*	**375-100**

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 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 TOUCH 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 SKC's website for more information at www.skcinc.com/catalog/pdf/instructions/1921.pdf

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 http://www.skcinc.com/warranty.

Appendix

Appendix: Performance Profile

Flow range	Constant flow from 1000 to 5000 ml/min (low flow from 5 to 500 ml/min requires low flow holder)
Compensation range *(back pressure capability)*	5000 ml/min at 20 inches water back pressure 4000 ml/min at 30 inches water back pressure 3000 ml/min at 40 inches water back pressure 2000 ml/min at 50 inches water back pressure 1000 ml/min at 50 inches water back pressure
Flow control system	Isothermal, corrects for changes in back pressure, temperature, and atmospheric pressure
Flow fault/Auto-restart	If pump is unable to compensate, it will go into flow fault mode and try to restart 5 times.
Power	Removable rechargeable Lithium-ion (Li-Ion), 7.4 V, 2.6 Ah, 19.2 Wh or AC using cradle
Run time	20 hours at 2000 ml/min† 10 hours at 5000 ml/min† Indefinite run from charging cradle
Charging method	Cradle, available as a single unit using Single Cradle Power Supply (Cat. No. 220-600); chainable up to 5 units using a Multi Cradle Power Supply (Cat. No. 220-700)
Charging Time *(varies with battery capacity and level of discharge)*	Approximately 3 hours
Accuracy	Flow control: ± 5% of set-point after calibration to desired flow Atmospheric pressure: ± 0.3 in Hg Temperature: ± 1 C
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	Color LCD/real-time flow rate, ambient temperature, ambient pressure, accumulated volume, elapsed time
User interface	Resistive touch screen with auto-dim and locking options
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 1/4-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 (550 gm)
Certifications	• Intrinsic safety: UL Class I, Div. 1, Groups A,B,C, and D; Class II, Div. 1, Groups E,F, and G; Class III, Div. 1 hazardous locations when used with SKC battery pack model P75718; T-Code T3C. Exia; Class I, Zone 0, Gp IIC (SKC Cat. No. 220-5000TC) • CE marked
Case material	Polycarbonate with rubberized anti-static overmolding
Features	Real-time clock, manual and PC programmability, on-screen battery status display, real-time flow indication, CalChek automatic calibration, ergonomic case design, secure clip, cradle for charging, calibration, PC connectivity (charging e-Cradle model only), and ultra-quiet operation
Media	Use to sample with sorbent tubes, filters, size-selective particulate samplers, and impingers
Warranty	1-year limited warranty

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