



AirChek® TOUCH Sample Pump

Cat. No. 220-Series

Operating Instructions

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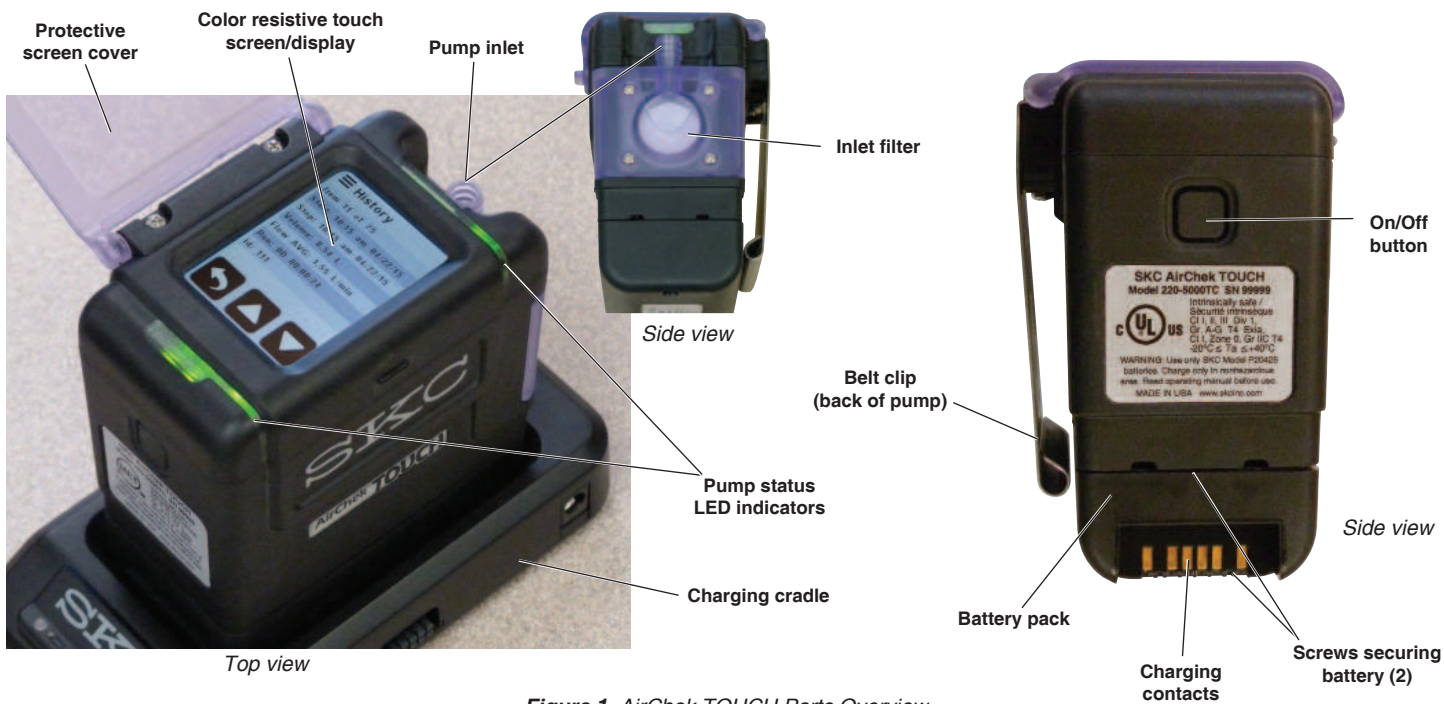


Figure 1. AirChek TOUCH Parts Overview

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 battery pack and screwdriver set
220-5000TC-S	Pump with battery pack, screwdriver set, Standard Charging Cradle, power supply with cord, 3 feet (0.9 meter) Tygon tubing, and collar clip with cable tie
220-5000TC-K	Pump with battery pack, screwdriver set, Standard Charging Cradle, power supply with cord, filter cassette holder, and soft-side nylon carry case
220-5000TC-KD	Pump with battery pack, screwdriver set, Standard Charging Cradle, power supply with cord, filter cassette holder, adjustable low flow holder, constant pressure controller, Type A protective tube cover, and soft-side nylon carry case
220-5000TC-DFK	Pump with battery pack, screwdriver set, Charging e-Cradle, power supply with cord, filter cassette holder, CalChek communication cable, USB cable, Defender calibrator with charger, and Pelican case
220-5000TC-K5	5 pumps with battery packs, screwdriver set, 4 Standard Charging Cradles, 1 Charging e-Cradle, power supply with cord, 5 filter cassette holders, and Pelican case
220-5000TC-K5D	5 pumps with battery packs, screwdriver set, 4 Standard Charging Cradles, 1 Charging e-Cradle, power supply with cord, 5 each: filter cassette holders, adjustable low flow holders, constant pressure controllers, Type A protective tube covers, and Pelican case
220-5000TC-DFK5	5 pumps with battery packs, screwdriver set, 4 Standard Charging Cradles, 1 Charging e-Cradle, power supply with cord, 5 filter cassette holders, CalChek communication cable, USB cable, Defender calibrator with charger, and Pelican case

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*).

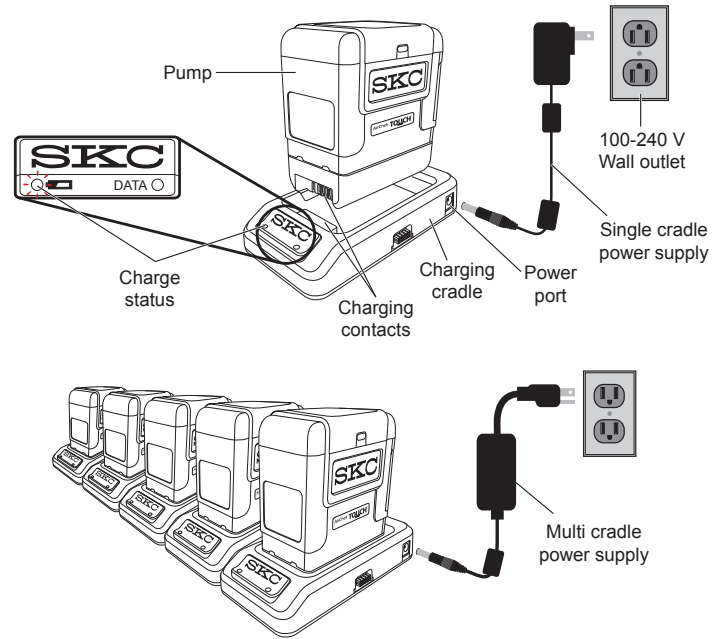


Figure 2. Charging Train, Single and Multiple Cradles

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 and cautions 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 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. **AVERTISSEMENT:** 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 battery packs, visit www.skcinc.com/catalog/pdf/instructions/1756.pdf.

Turning Pump Power On/Off (Figure 1, K)






Turn on: Press and hold briefly the recessed power button on the side of the pump [Figure 1, K]. 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 Modify Device Settings, Security.

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, B)

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

Learning the Home Screen

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.

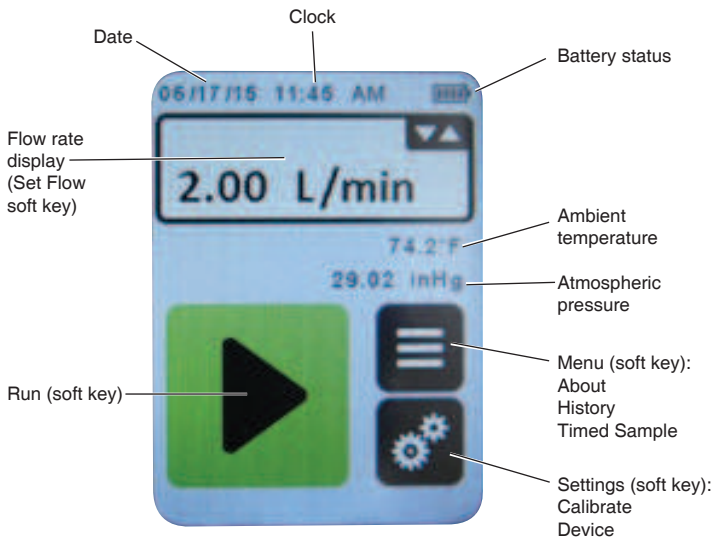


Figure 3. Home Screen, Pump not Running

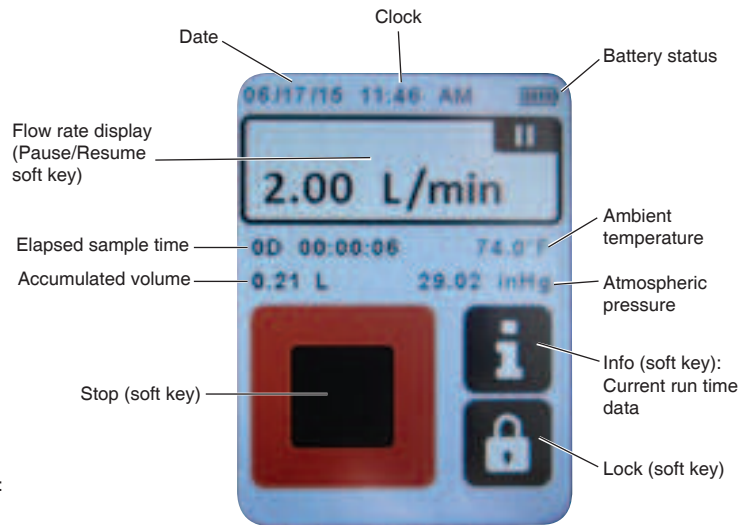


Figure 4. Home Screen, Pump Running

Reading Pump Status Indicators

Observe the status LEDs that bracket the touch screen on the pump to determine pump status.



Figure 5. Green, flashing = Pump or schedule running





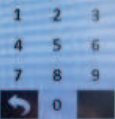


Figure 6. Red, flashing = Flow fault






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 Figures 3 and 4).

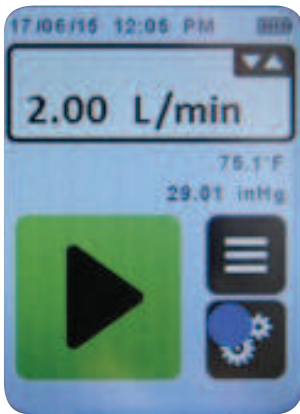
Navigational Soft Keys

	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

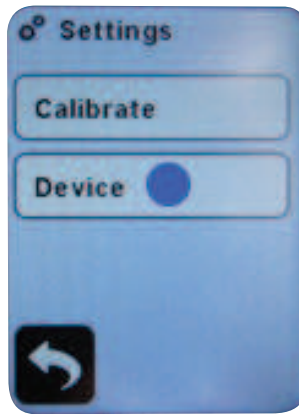
	Checkmark accepts selections/settings and moves to next menu/screen or Home screen
	Erase removes values from fields (right to left). Once all fields are empty, it moves to previous menu/screen.
	Exit moves to Home screen without accepting selections/values.
	Run starts a manual sample, timed run, and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

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

Changing Date/Time and Display



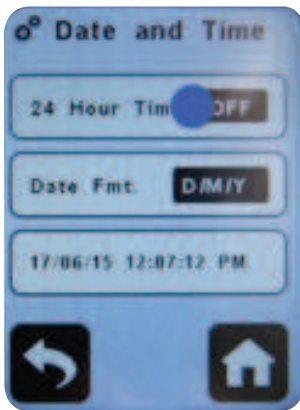
1. Touch Settings soft key.



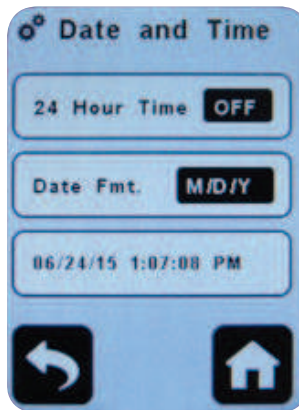
2. Touch Device.



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



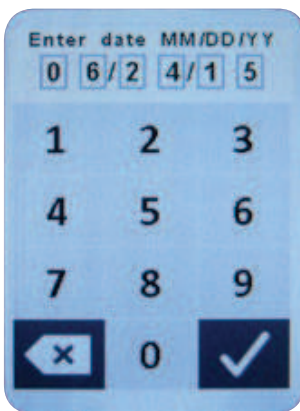
4. Touch 24-Hour Time to toggle ON and OFF (displayed setting in effect).



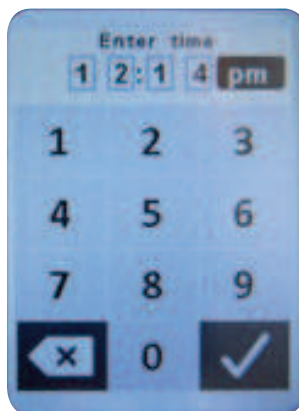
5. Touch Date Fmt. to toggle M/D/Y, D/M/Y, and Y/M/D (displayed setting in effect).



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:

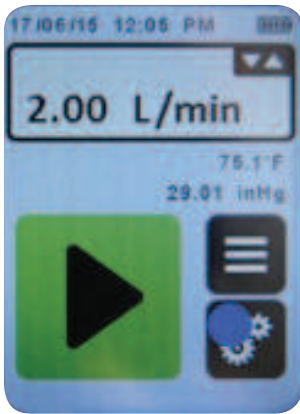


Back moves to Device screen; changes accepted.

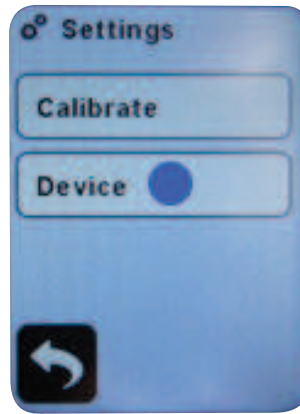


Home moves to Home screen; changes accepted.

Changing Security (Lock Out) and Auto-Dim



1. Touch Settings soft key.



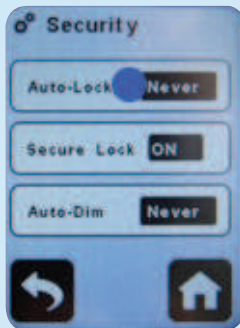
2. Touch Device.



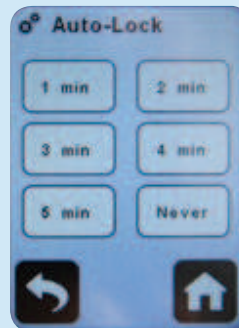
3. Touch Security to access security screen.

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

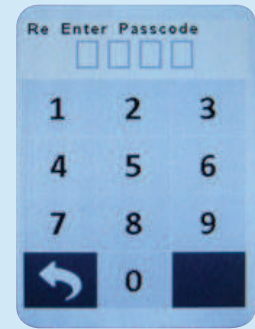
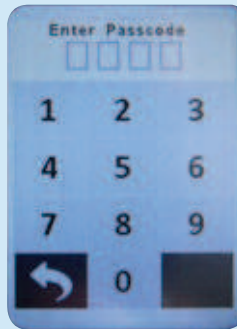
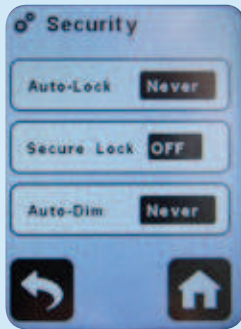
Touch another security soft key.

* **Note:** Running a Timed Sample (even if Auto-Lock is set on Never) will always initiate Auto-Lock (see Operation, Setting Up and Running a Timed Sample).

Secure Lock

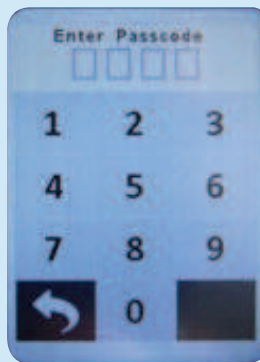
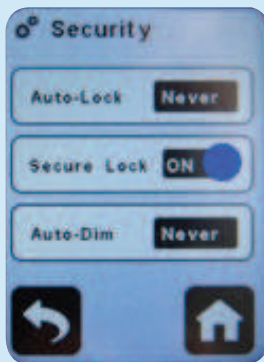
Secure Lock prevents tampering during sampling by requiring a **user-set passcode** to be entered to unlock the touch screen and power button.

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.

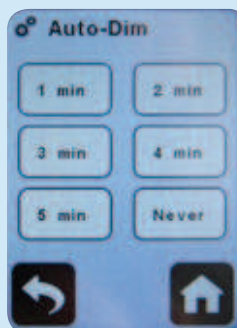
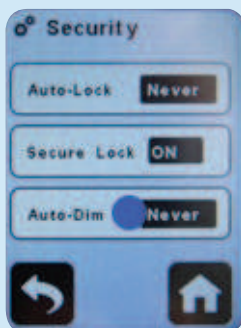
or

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

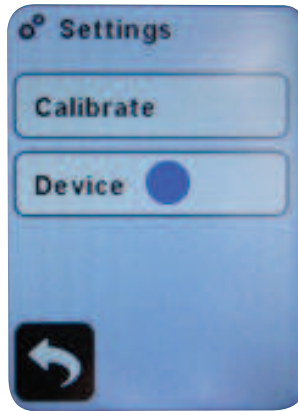
Touch another security soft key.

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

Changing Display Units



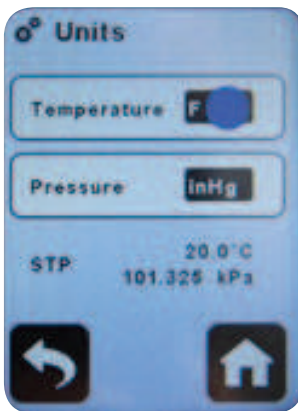
1. Touch Settings soft key.



2. Touch Device.



3. Touch Units to access Units screen.



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



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.

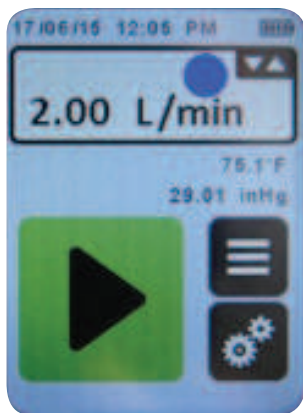


Home moves to Home screen, changes accepted.

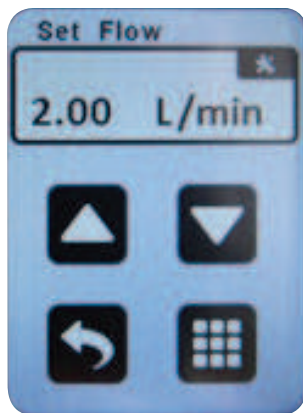
Note: STP parameters are displayed on this screen but can only be changed using DataTrac Pro Software. See DataTrac Pro Operating Instructions.

Operation

Setting Flow Rate



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*.

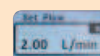
Select option:



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).

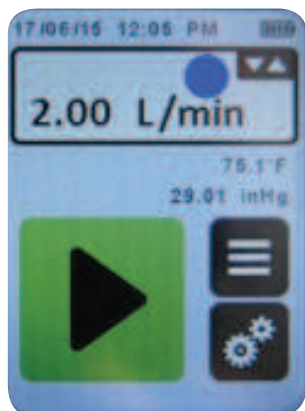
* **Note:** Using the up/down arrow soft keys to adjust flow will allow access to manual calibration from this screen. Touch flow rate display (Manual Cal soft key – tools icon in upper right corner).

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.

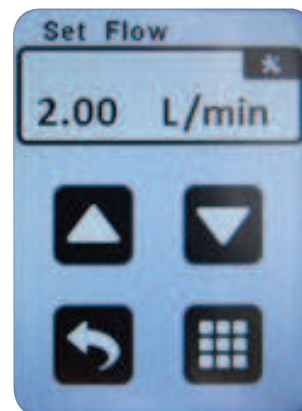
Calibrating Flow Rate from 1 to 5 L/min

- 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.

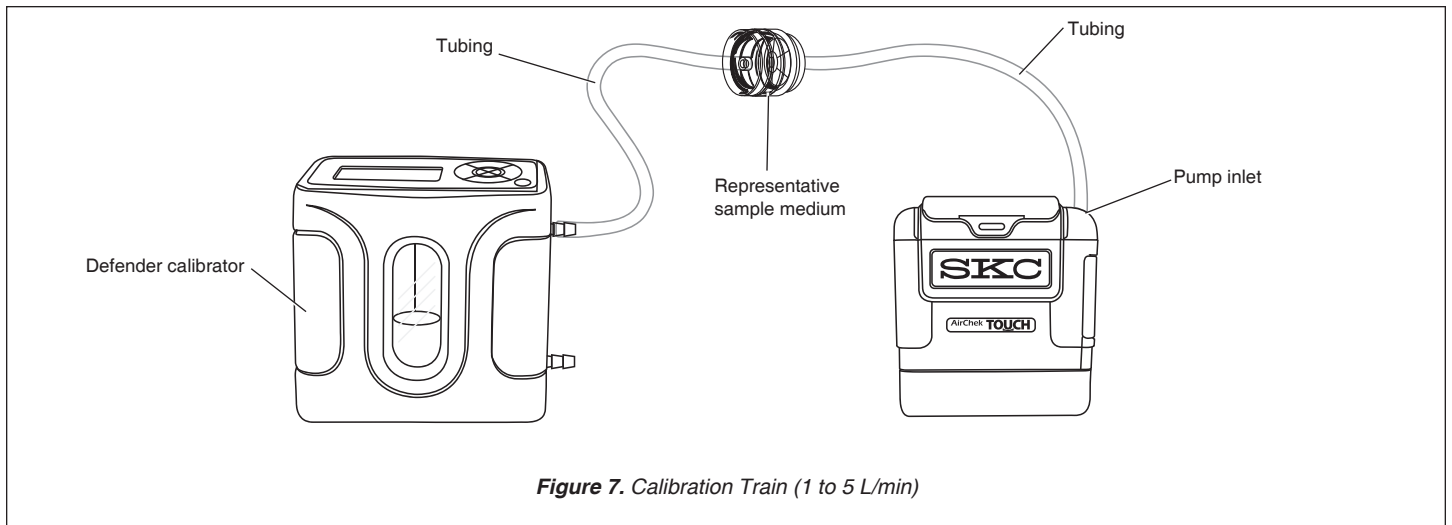
Manual Calibration



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



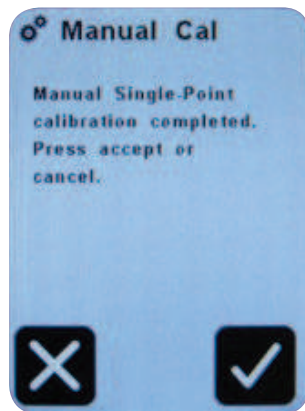
2. Touch up/down arrows to set desired flow rate (see *Setting Flow Rate*). Allow pump to run for five minutes. Touch flow rate display (Manual Cal soft key – tools icon in upper right corner).



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 Defender calibrator (Cat. No. 717-M Series), Standard Charging Cradle (Cat. No. 220-800) or Charging e-Cradle (Cat. No. 220-900), and CalChek Communication Cable (Cat. No. 210-502). CalChek Single calibration is performed **with** representative sampling medium inline.

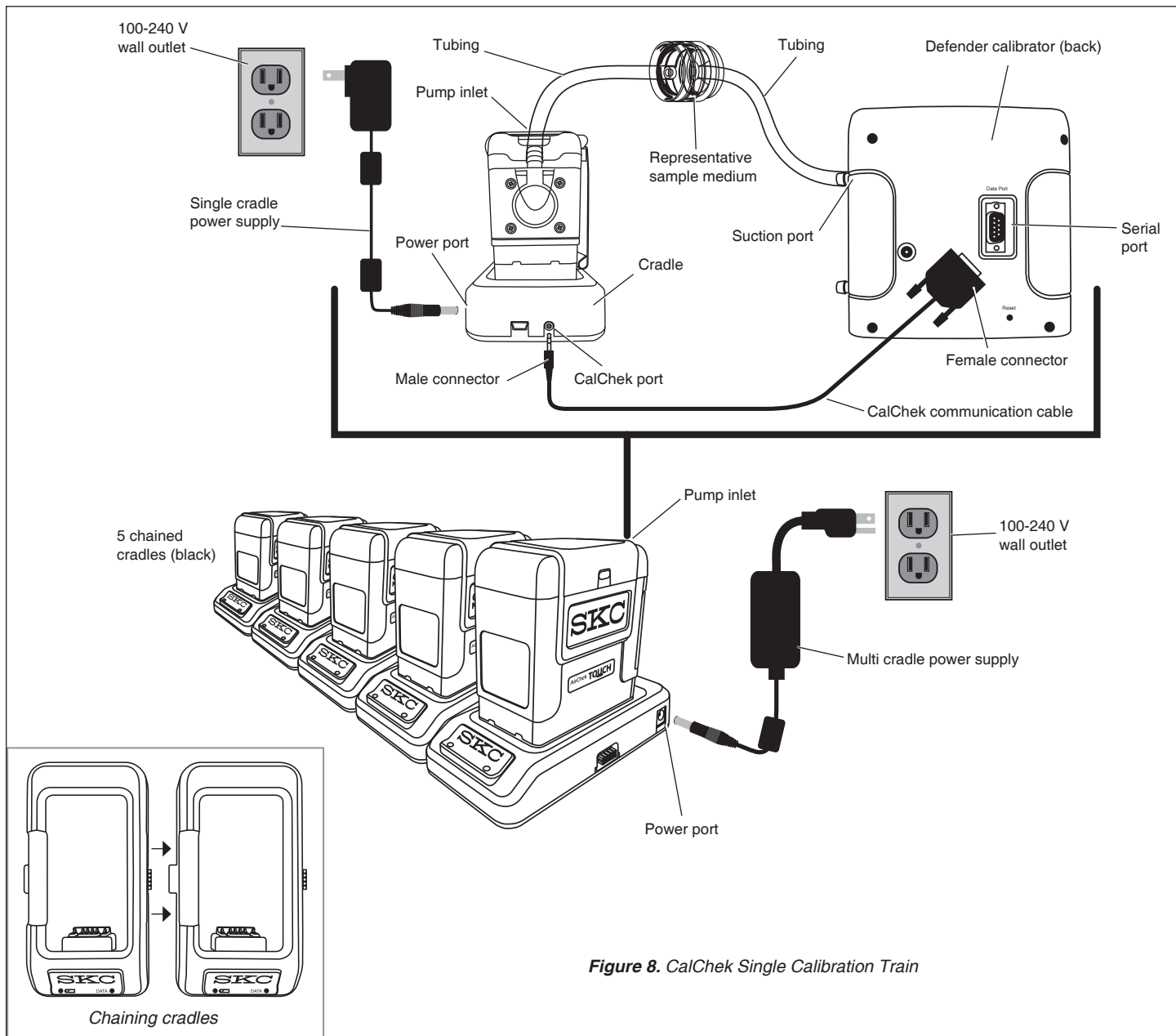


Figure 8. CalChek Single Calibration Train

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.*
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 7*).
3. Touch Stop soft key.

Setting Up the Defender Calibrator

1. Press and hold power button on the Defender calibrator until the piston moves; screen will light.
2. Select the Defender data port:
 - a. Press the right arrow to highlight Setup; press Enter.
 - b. Press the right arrow to highlight Preferences; press Enter.
 - c. Press the down arrow to navigate to Data Port.
 - d. Press the left or right arrow to toggle to SKC.
 - e. Press the down arrow to highlight Confirm; press Enter.
3. Enter Defender calibration mode:
 - a. Press the right arrow and then the down arrow to highlight Measure; press Enter.
 - b. Press the right arrow to highlight Cont.; press Enter.

Preparing the CalChek Communication Cable

Connect CalChek Communication Cable to Defender calibrator and pump charging cradle.



1. Install female connector end of cable onto serial (RS-232) port on back of Defender calibrator.



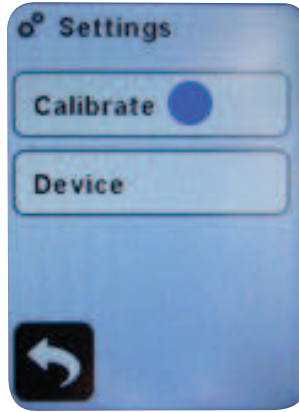
2. Insert male connector into CalChek port on back of charging cradle.

Initiating CalChek Single Automatic Flow Calibration

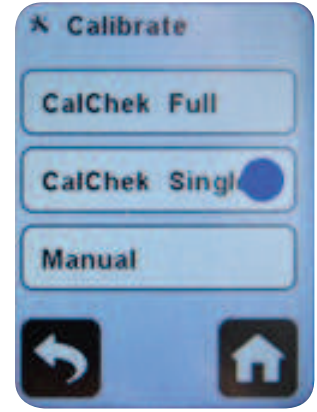
See pages xx-xx for CalChek Multiple Calibration to be used following pump maintenance or repair.



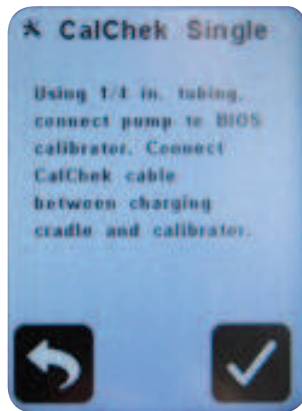
1. Touch Settings soft key.



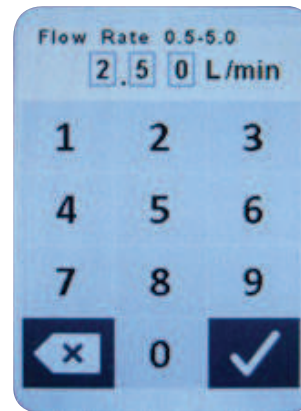
2. Touch Calibrate.



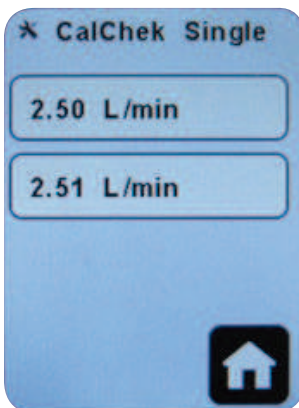
3. Touch CalChek Single.



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 Defender. **Note:** Calibration can be cancelled at any time by touching Home.

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

- 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*.
- If calibrating multiple pumps in chained cradles:** Install tubing connected to representative sample medium on next pump inlet. Set flow rate and repeat calibration procedure (see *Initiating CalChek Single Automatic Flow Calibration*.) Once all pumps are calibrated, remove pumps from cradles and remove CalChek Communication cable from cradle. Proceed to *Sampling*.

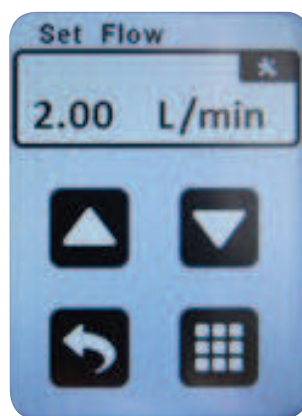
Calibrating Flow Rate from 5 to 500 ml/min

- 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.
- Requires Constant Pressure Controller (CPC) and Adjustable Low Flow Holder accessories.
- See Adjustable Low Flow Holder Operating Instructions for details on holder operation.

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



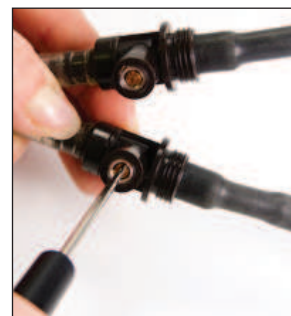
1. Touch flow rate display (Set Flow soft key) on a pump that is not running. Pump will run and display Set Flow screen.
2. Touch up/down arrows to set pump flow rate (*see Setting Flow Rate*).
 - a. **For single-tube sampling:** Set flow rate to 1.50 L/min
 - b. **For multiple-tube sampling:** Set flow 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

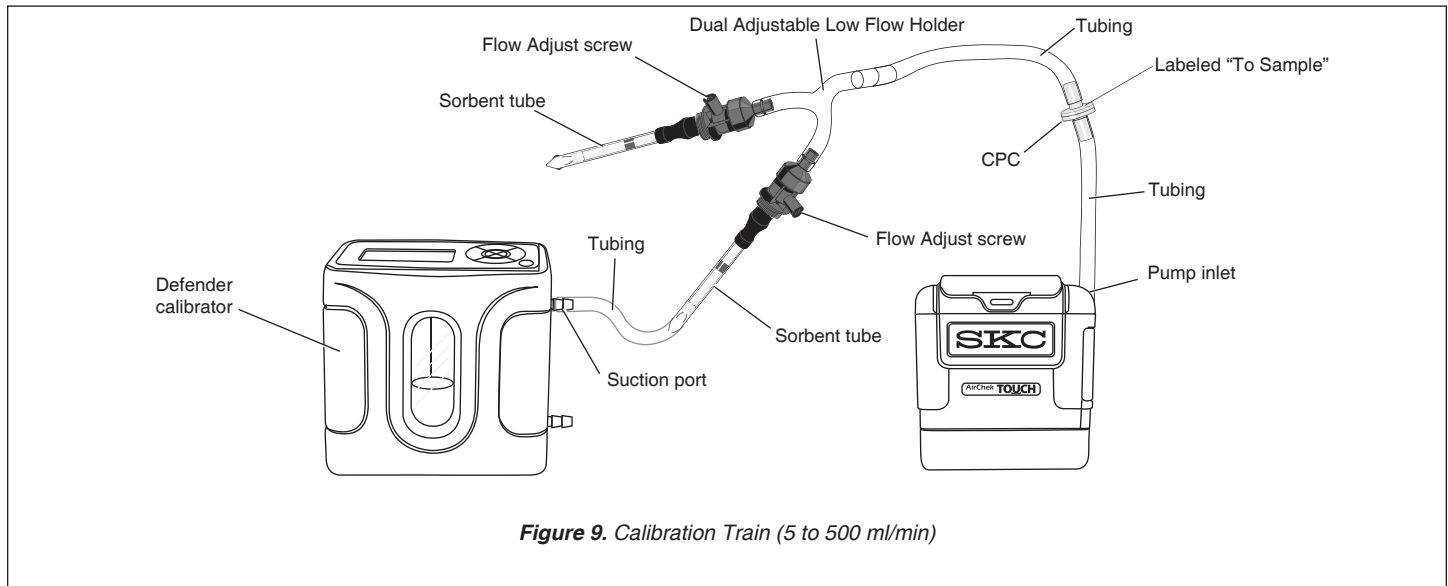
Home → Settings → Calibrate → Manual → Connect calibration train → checkmark → enter flow rate → checkmark → adjust flow with flow adjust screw on holder → checkmark → checkmark to accept or X to cancel → Home

Preparing the Tube Holder

1. On the Adjustable Low Flow 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 9.*
2. Place an unopened (inactive) tube in any unused port to “seal” it.
3. **If performing multiple-tube sampling,** label ports on adjustable low flow holder to match tube labels.
4. On the Adjustable Low Flow Holder, loosen the brass flow adjust screw directly beneath the port holding the first active tube to be calibrated.



Setting Up the Calibration Train



Set up a calibration train, connecting the calibrator to the first sorbent tube. See Figure 9.

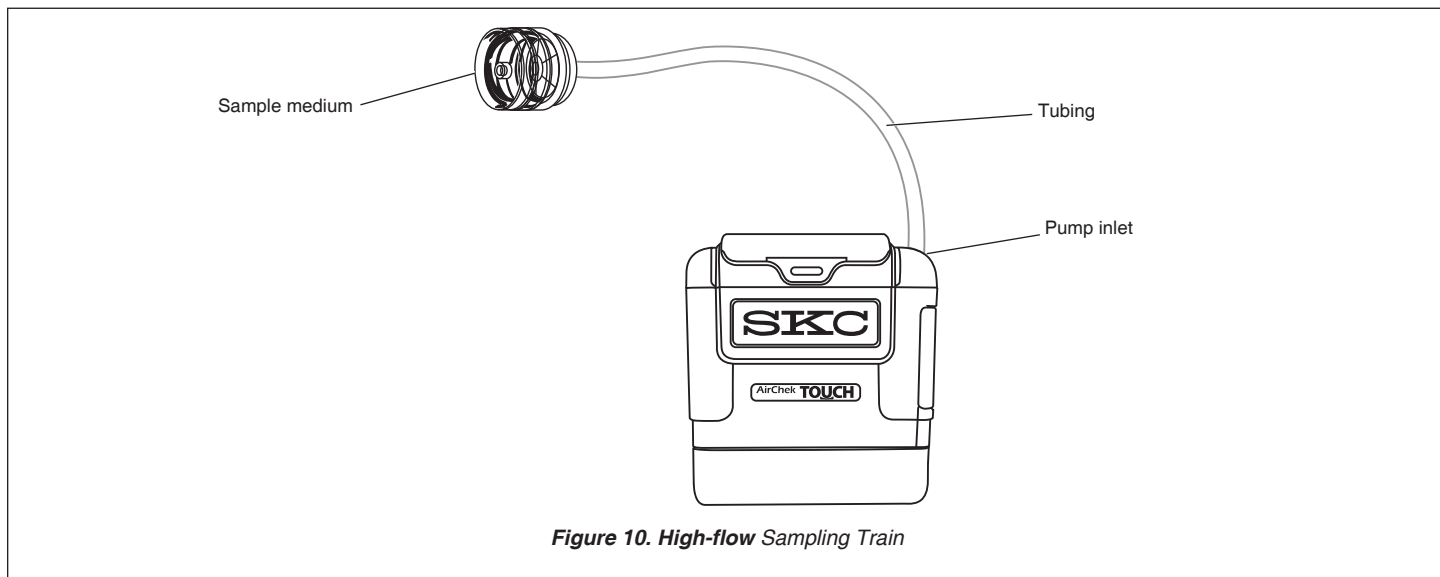
Calibrating Pump Flow Rate with Tube Holder

1. Using a small flat-head screwdriver, turn 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 result in changing the flow rate displayed on the calibrator; it will not change the flow rate displayed on the pump.
2. **If performing multiple-tube sampling,** remove calibrator tubing from current tube and install on next active tube. Loosen 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 checkmark on the pump touch screen to move to Manual Cal Completed screen.
6. Manual Cal screen displays “Manual Single-point calibration completed. Press accept (checkmark) or cancel (X)” and return to Home screen.
7. Disconnect pump from representative sampling medium and calibrator and proceed to *Sampling*.

Sampling

Setting Up a Sampling Train

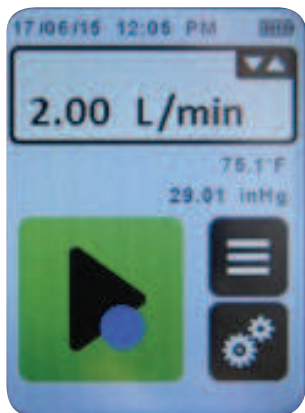
- Allow pump to equilibrate after moving it from one temperature extreme to another.
- Charge pump battery completely before calibration and sampling.
- Use of any device (including charging cradle) or battery pack other than P75718 to power the pump voids intrinsic safety certifications and any warranty.
- Pump can be operated from cradle.



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

Manual Sampling

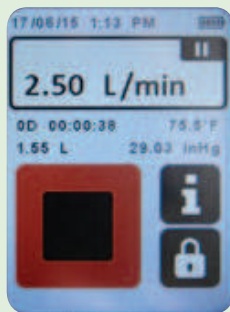
1. Set pump flow rate to a method-specified flow (see *Setting Pump Flow Rate*).
2. Calibrate pump flow rate using representative sampling media (see *Calibrating Pump Flow Rate from 1 to 5 L/min* or *Calibrating Pump Flow Rate from 5 to 500 ml/min*).
3. Set up sampling train (see *Figure 10*).



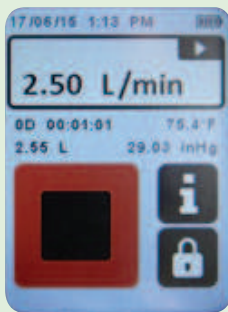
Touch Run soft key to start sample.
Record sample start time.

Options/Modes During Sampling

Pause/Resume

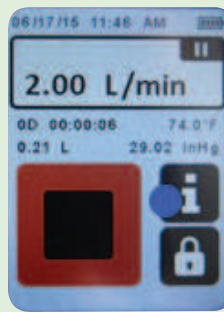


To pause sample:
Touch Flow Rate display/Pause soft key. Pump stops; run time data **freezes**.

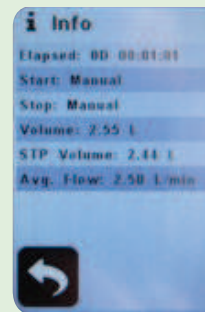


To resume sample:
Touch Flow Rate display/Resume soft key. Pump runs; run time data resumes accumulation.

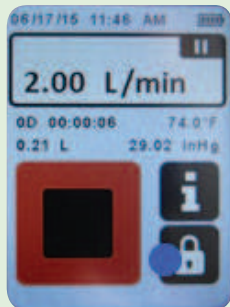
Information



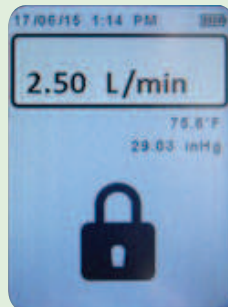
Touch *i* soft key to access current run time data.



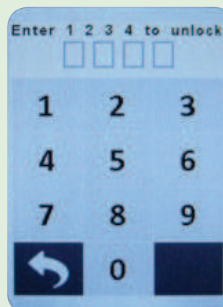
Lock Out



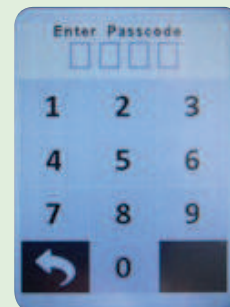
To lock screen: Touch Lock soft key. The Lock screen displays.



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

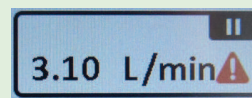
Fault Mode

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.
 - If flow is **corrected during auto-restart**, pump will continue sample and data accumulation.
 - If flow is **not corrected during auto-restart**, pump will stop and run time/volume display will reset to zero. See Accessing History for run time data.

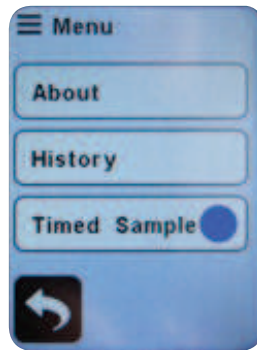
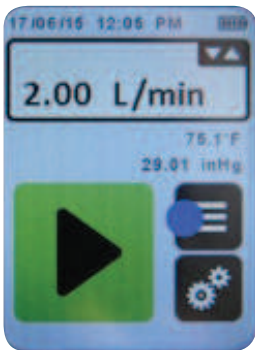
Note: Faults display in pump history, but cause of fault is not indicated.



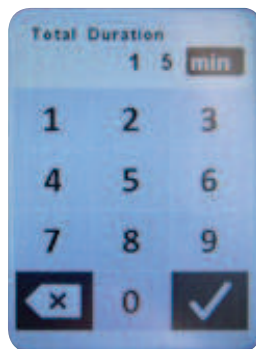
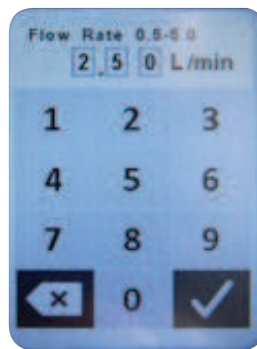
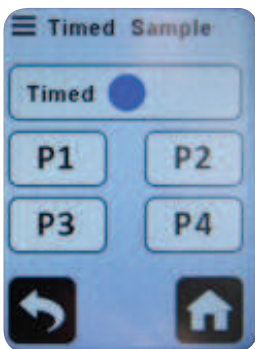
5. Touch Stop soft key to stop sample. Accumulated time and volume will reset.
6. Record sample stop time, remove sample medium, and cap.
7. Re-install representative sample medium and perform post-sampling calibration (*see Calibrating Pump Flow Rate*).

Setting Up and Running a Timed Sample

1. Calibrate pump flow rate using representative sampling medium (*see Calibrating Pump Flow Rate*).
2. Set up sampling train (*see Figure 10*).



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.

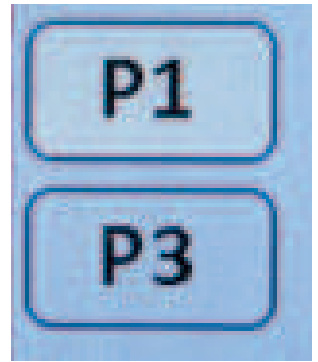


Home moves to Home screen without accepting the timed sample.

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.

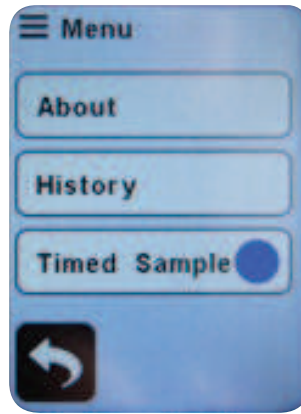


Top: Programmed Preset

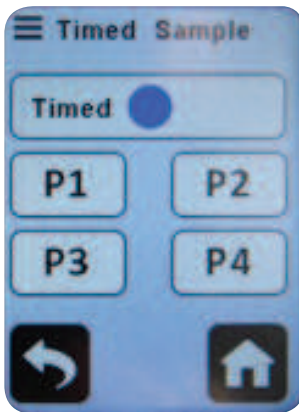
Bottom: Empty Preset



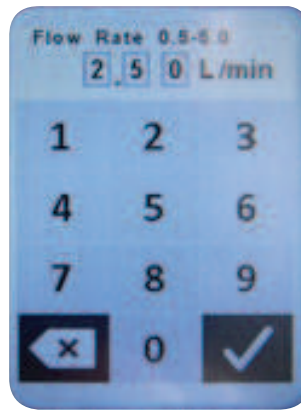
1. Touch Menu soft key.



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.

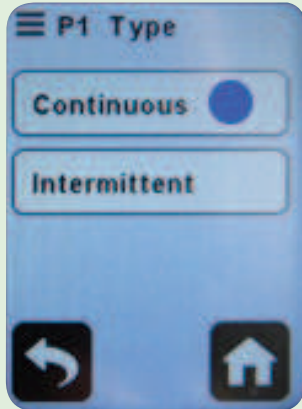


3.b a. To program a continuous sample: Touch Continuous
b. To program an intermittent sample: Touch Intermittent

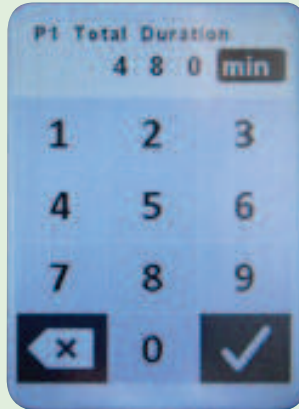
Timed Sample Preset Options

Continuous Sample

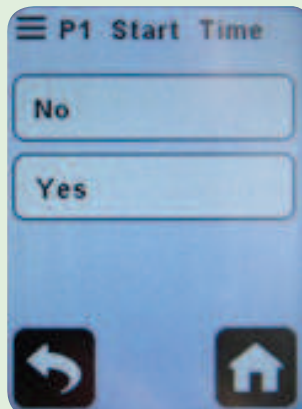
Enter the total duration of the sample run and specify a start date, if desired.



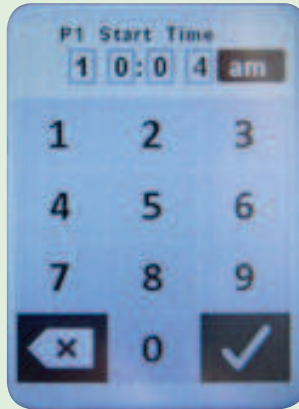
1. Touch Continuous soft key.



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:

06/25/15

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.



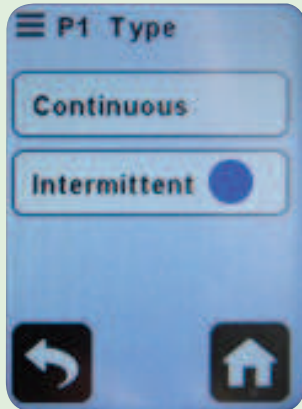
Edit moves to Flow Rate screen; allows flow rate, type of sample, total duration, and start time to be changed. **Note:** Touch *Erase* soft key on each screen to erase existing values and enter new values.



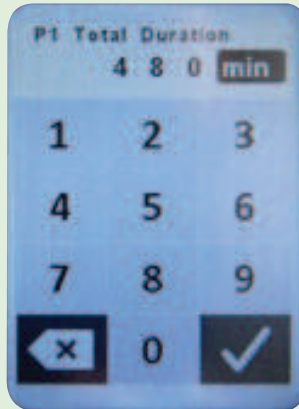
Home moves to Home screen.

Intermittent Sample

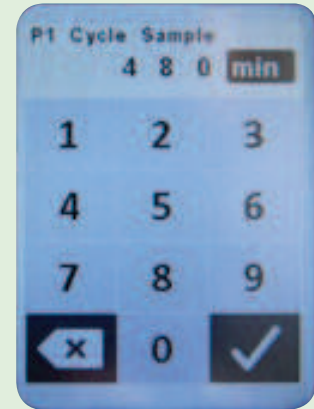
Enter the total duration of the sample run, and then specify number of minutes the pump is to run and number of minutes the pump is to pause during a single cycle. The AirChek TOUCH will calculate the number of run/pause cycles and the estimated volume. **Note:** During calculations, the pump may make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



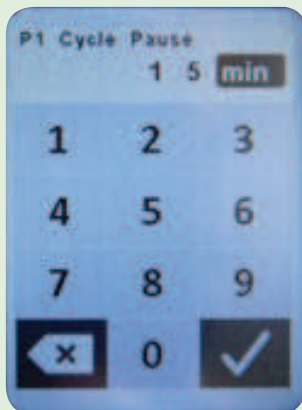
1. Touch Intermittent.



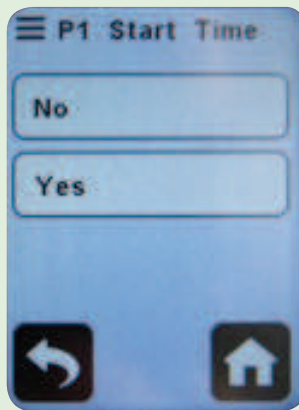
2. Enter total duration of sample run in minutes. Touch checkmark to accept. P1 Cycle Sample screen displays.



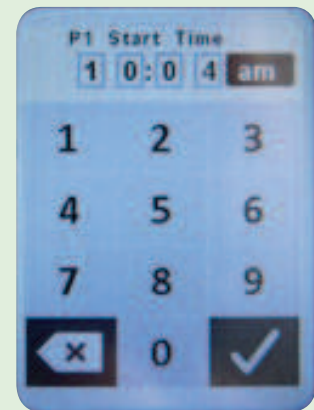
3. Enter number of minutes pump is to actively sample during each cycle. Touch checkmark to accept. P1 Cycle Pause screen displays.



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.

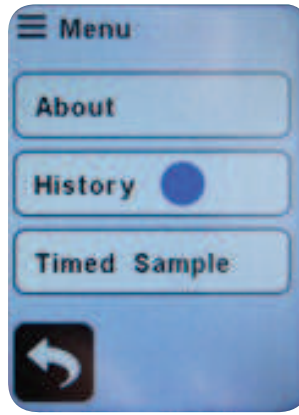


Home moves to Home screen.

Accessing History



1. Touch Menu soft key.



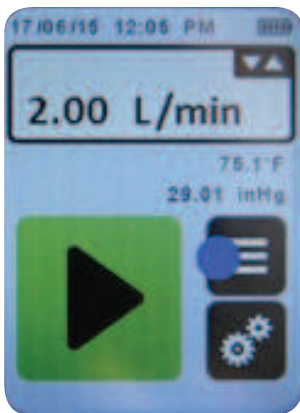
2. Touch History. A short history of the latest sample run displays.



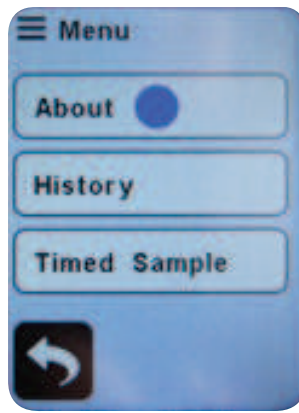
Touch up/down arrows to scroll through a maximum of 1042 history records.

Note: 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.

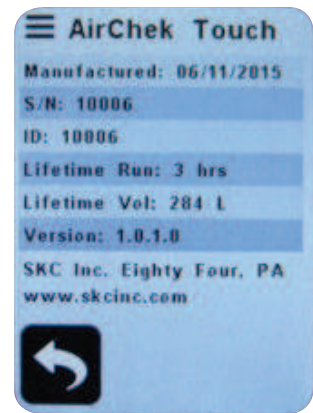
Accessing Pump Information



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 Charging e-Cradle (Cat. No. 220-900) and DataTrac Pro Software (Cat. No. 877-93).

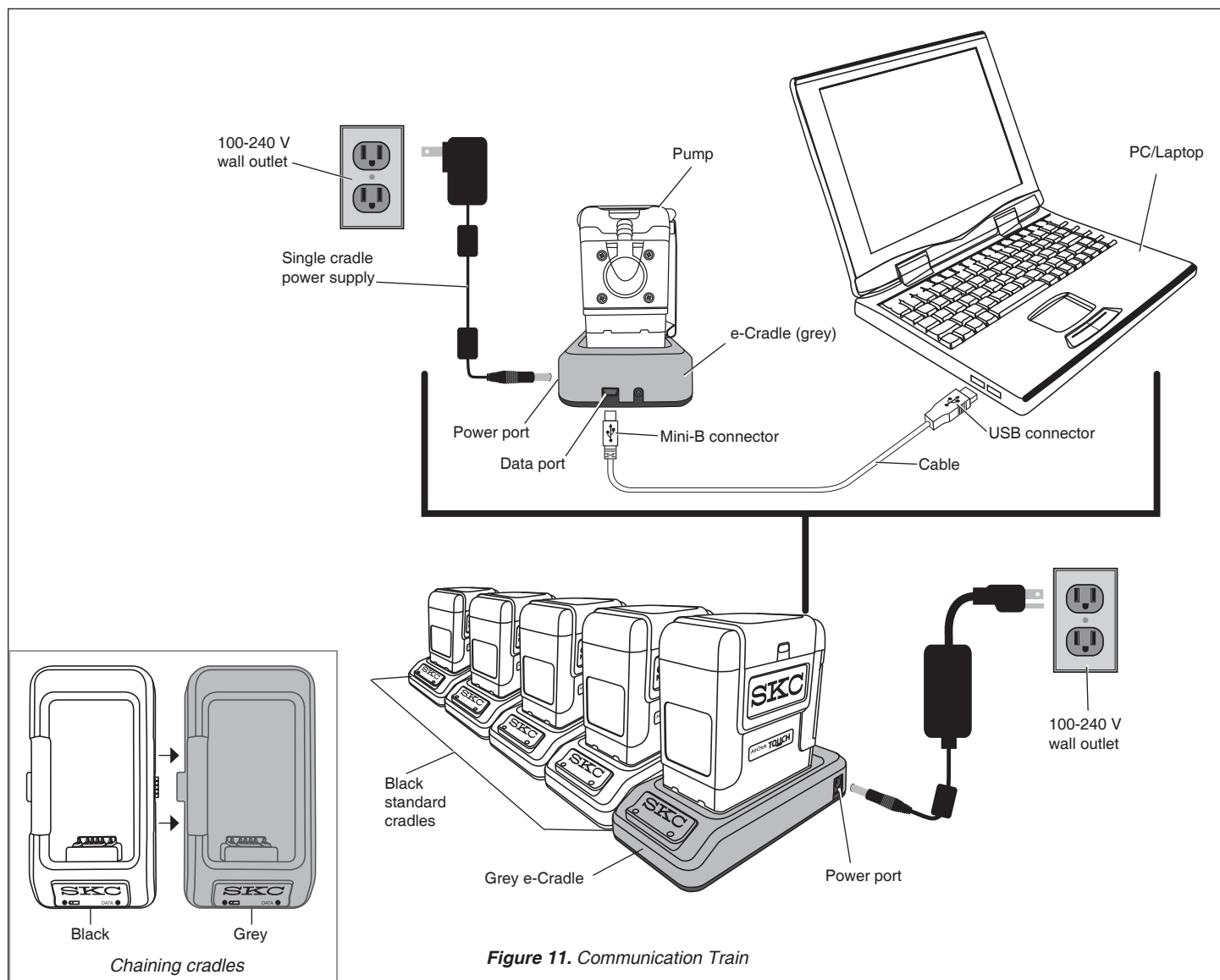


Figure 11. Communication Train

1. Install DataTrac Pro Software on a PC that has an available USB 2.0A port.
2. Prepare cradle(s).
 - a. **Single e-Cradle:** Ensure cradle is connected to a Single Cradle Power Supply (see Figure 2). Insert Mini-B end of communication cable into port on back of Charging e-Cradle. Insert USB end of cable into USB 2.0A port on PC. See Figure 11.
 - b. **e-Cradle chained with multiple Standard Cradles:** Ensure e-Cradle is connected to a Multi Cradle Power Supply (see Figure 2). Prepare e-Cradle as stated in Step 2.a. Press together the connector on the side of the e-Cradle with the connector on the side of the succeeding Standard Cradle. Repeat connection to chain up to a total of 4 Standard Cradles to the e-Cradle.
3. Align contacts on bottom edge of pump with contacts inside cradle and insert pump in cradle. Repeat for each additional pump/cradle.
4. Turn on pump(s).
5. Launch DataTrac Pro on PC. The right data LED on the cradle(s) will flash green to indicate communication with PC.

DataTrac Pro Software detects connected sample pumps and allows for download of pump history and reporting, pump control and monitoring, programming sample presets, and pump configuration and updating.

Maintenance

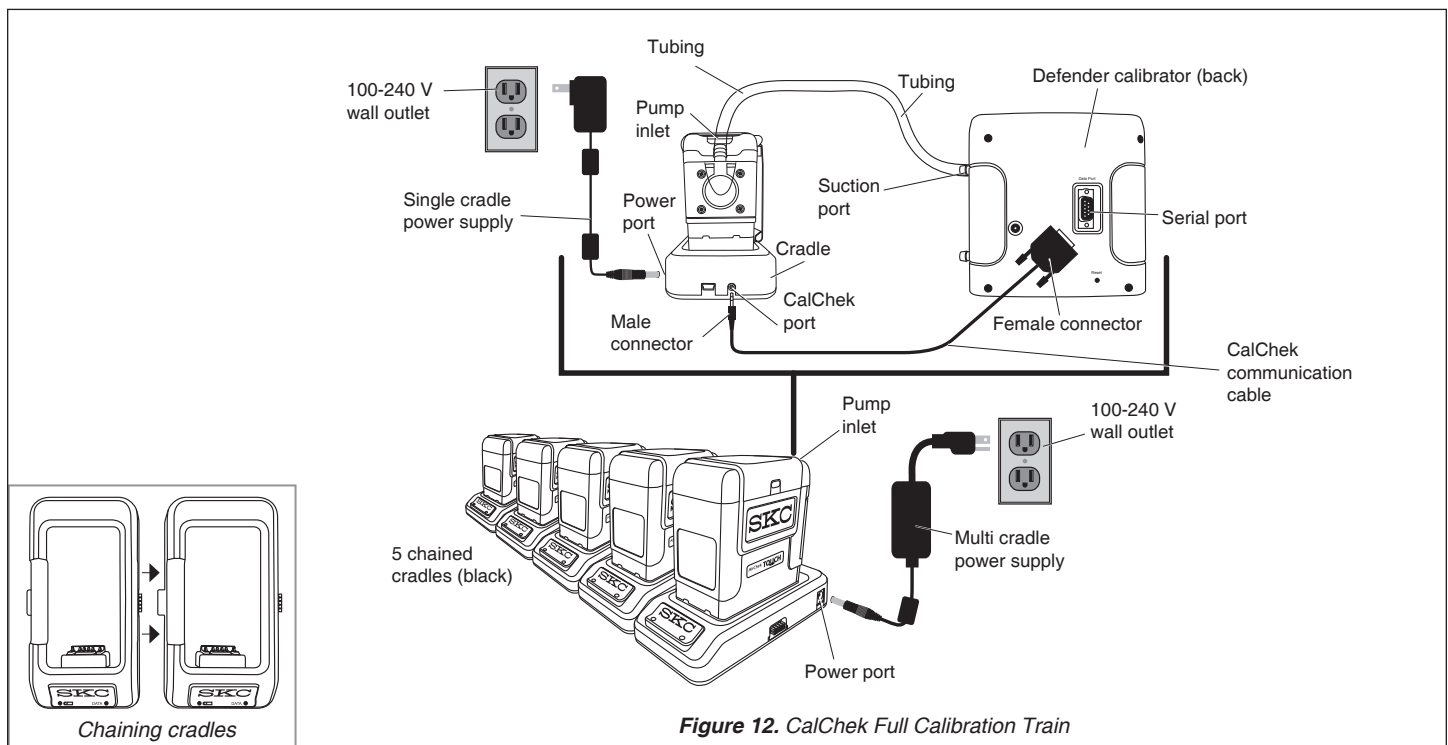
Changing the Battery Pack

1. Remove the existing battery pack.
 - a. Press and hold briefly the recessed power button on the side of the pump to turn pump power off (screen turns off).
 - b. Use a 2.5-mm hex driver (Allen wrench) to loosen two screws on bottom of battery pack housing.
 - c. Pull battery pack housing away from pump case.
 - d. If replacing battery pack with a new battery pack (Cat. No. P75718), dispose of the used battery promptly. **Caution: 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.**
2. Install a new battery pack or re-install 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 battery pack completely before use. See Charging the Battery Pack.

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 Defender calibrator (Cat. No. 717-M Series), Standard Charging Cradle (Cat. No. 220-800) or Charging e-Cradle (Cat. No. 220-900), and CalChek Communication Cable (Cat. No. 210-502). CalChek Full Calibration is performed without a sampling medium in line.

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



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 12*).
3. Touch Stop soft key.

Setting Up the Defender Calibrator

1. Press and hold power button on the Defender calibrator until the piston moves; screen will light.
2. Select the Defender data port:
 - a. Press the right arrow to highlight Setup; press Enter.
 - b. Press the right arrow to highlight Preferences; press Enter.
 - c. Press the down arrow to navigate to Data Port.
 - d. Press the left or right arrow to toggle to SKC.
 - e. Press the down arrow to highlight Confirm; press Enter.
3. Enter Defender calibration mode:
 - a. Press the right arrow and then the down arrow to highlight Measure; press Enter.
 - b. Press the right arrow to highlight Cont.; press Enter.

Preparing the CalChek Communication Cable

Connect CalChek Communication Cable to Defender calibrator and pump charging cradle.



1. Install female connector end of cable onto serial (RS-232) port on back of Defender calibrator.

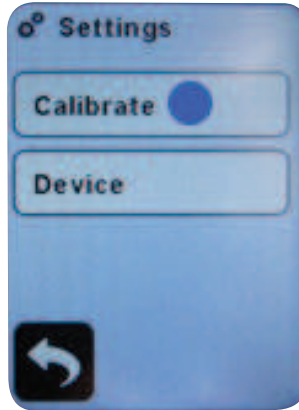


2. Insert male connector into CalChek port on back of charging cradle.

Initiating CalChek Full Calibration



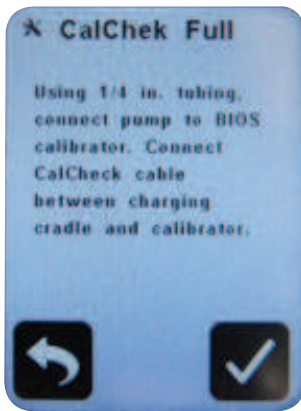
1. Touch Settings soft key.



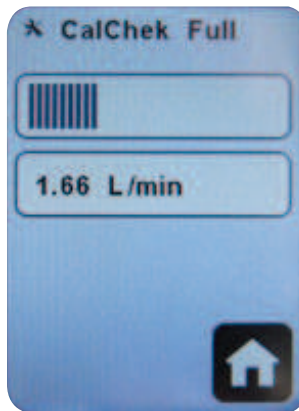
2. Touch Calibrate.



3. Touch CalChek Full.



4. Ensure calibration train, **without** medium, is in place (see Figure 12). 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 Defender. **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	<ol style="list-style-type: none">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 will not respond to any touches.	Reset the pump (<i>see Resetting the Pump Manually</i>).

Resetting the Pump Manually

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

1. Remove battery pack, and then re-install the battery pack. *See Changing the Battery Pack.*
 - a. Touch screen. If screen is responsive, continue pump operation.
 - b. If screen remains unresponsive, proceed to Step 2.
2. Remove battery pack (*see Changing the Battery Pack*). Lay pump case on a flat surface with the AirChek TOUCH logo facing upward.
3. Locate the two protruding power control board contacts on bottom of pump case.
4. Rest a metal paperclip across the 2 control board contacts, and then remove paperclip.
Caution: Do not use a sharp object on contacts. Do not damage contacts.
5. Re-install battery pack. *See Changing the Battery Pack.*



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



Accessories/Replacement Part Ordering

Accessories	Cat. No.
Standard Charging Cradle , <i>requires power supply, see below</i>	220-800
Charging e-Cradle , includes USB cable and DataTrac Pro Software, <i>requires power supply, see below</i>	220-900
Single Cradle Power Supply , for use with one charging cradle	220-600
Multi Cradle Power Supply , for use with 2 to 5 charging cradles	220-700
Replacement Battery Pack , Li-Ion*	P75718

* Li-Ion batteries may be subject to special shipping regulations

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.asp>.

Appendix

Appendix: Performance Profile

Flow range	Constant flow from 1000 to 5000 ml/min (low flow from 5 to 500 ml/min requires adapter)
Compensation range <i>(backpressure capability)</i>	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	Patented* 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, 19.24 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 <i>(varies with battery capacity and level of discharge)</i>	Approximately 3 hours
Accuracy	Flow control: ± 5% of set-point after calibration to desired flow Atmospheric pressure: ± 0.3 in Hg Temperature: ± 1.0 C
Temperature ranges	Operating: 32 to 113 F (0 to 45 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 113 F/ 0 to 45 C) and ambient pressure up to 15,000 feet above and down to 4,500 feet 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	<ul style="list-style-type: none"> 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

* U.S. Patent No. 5,892,160

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