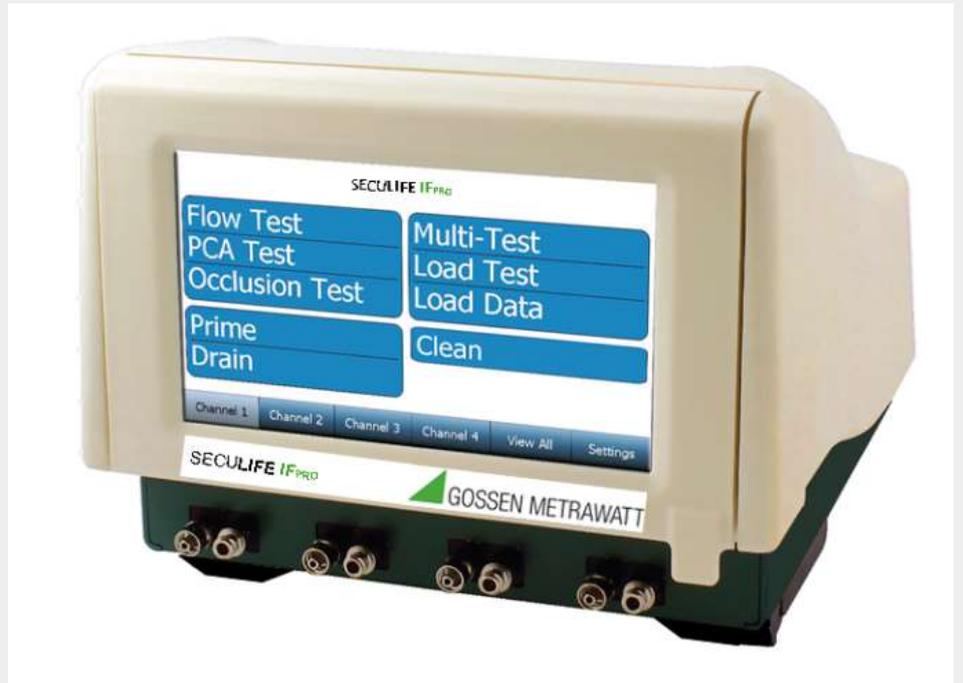
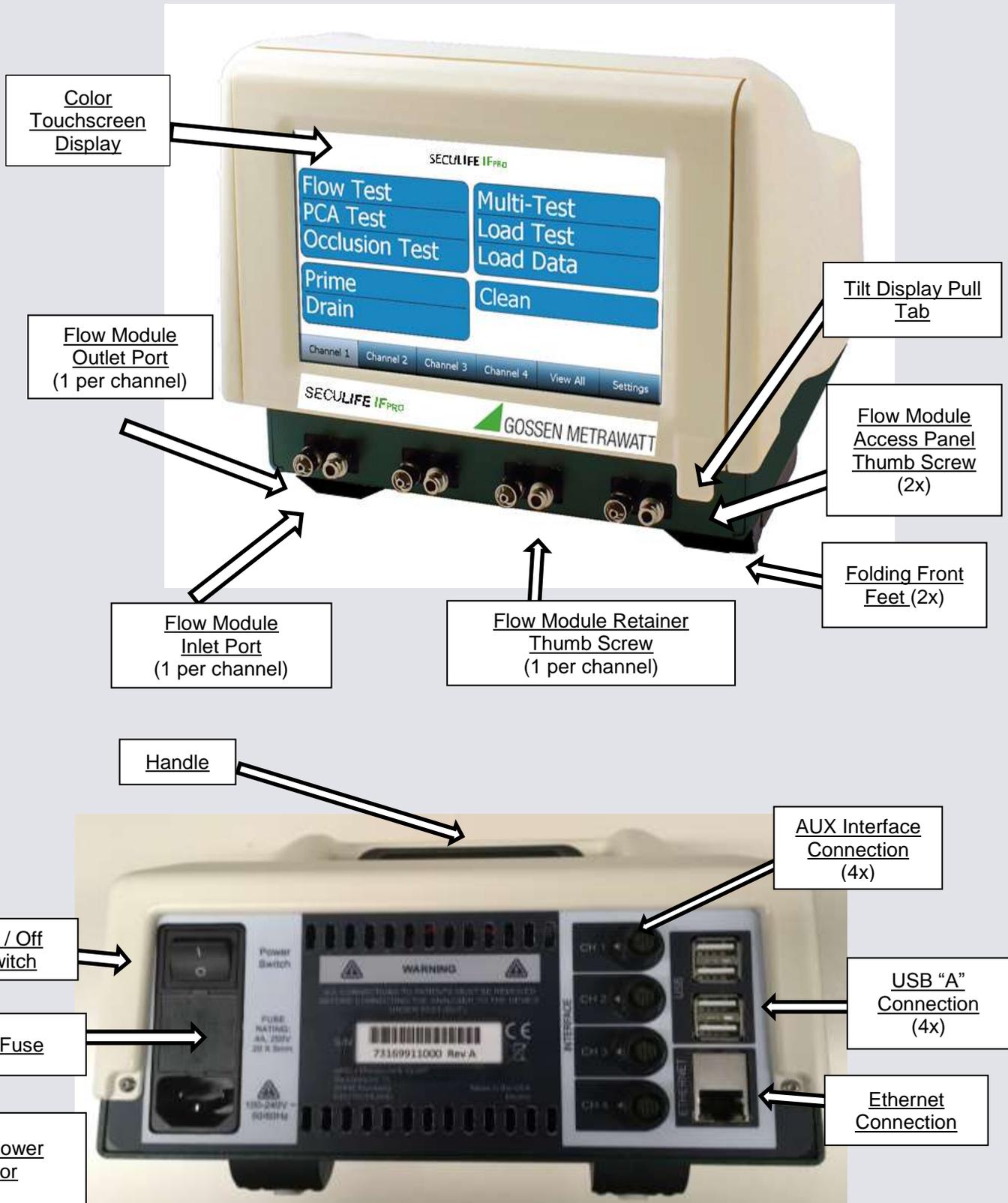


QUICK SETUP GUIDE

SECULIFE IF_{PRO}



The SECULIFE IF_{PRO} is the most compact, full featured four channel analyzer on the market. It is a high accuracy, easy to use system that incorporates full touch screen control of all processes without the use of old fashioned buttons and knobs. The SECULIFE IF_{PRO} has built-in auto-sequence test procedures. This allows specific test routines specified by various manufactures to be run, which provides significant time savings and reduces the risk of human error.



The SECULIFE IF_{PRO} will be delivered with following Accessories (Standards and Accessories):

1 SECULIFE IF_{PRO} (M696A, base unit)

1 Information-CD

1 Calibration Certificate

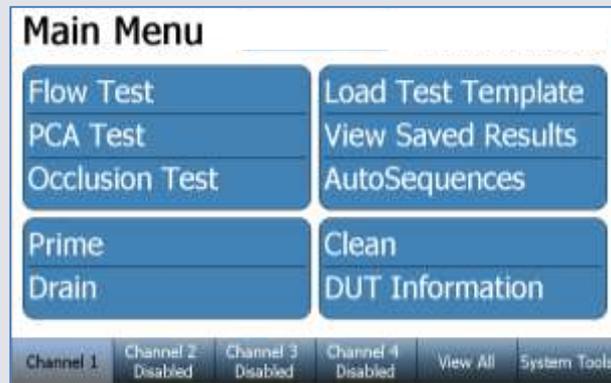
1 Power Cable

Der SECULIFE IF_{PRO} is designed for hold up to 4 SECULIFE IF FM flow modules. These modules are individually serialized and calibrated so that they may be moved from channel to channel and even unit to unit. Once installed, they are recognized by the SECULIFE IF_{PRO} and their serial number and calibration information are presented on the display and utilized in all data reporting. To install them, please open the open display on the pull tab and remove the access panel on the SECULIFE IF_{PRO}.



Main Menu

After starting the SECULIFE IF_{PRO} the display will usual show the main menu. You can change the shown display settings by using the system tools. You can easily choose the desired operating mode within the main menu.



Flow Test

In this operating mode you can define the test settings.

PCA Test

In this operating mode you can define the test settings for PCA test.

Occlusion Test

In this operating mode you can define the test settings for occlusion test.

Prime, Drain und Clean

In this operating mode you can prime, drain through the channel or clean the device.

Load Test Template

In this operating mode you can load test templates.

View Saved Results

Saved test settings can be shown there.

Auto sequence

This operating mode allows the user to perform specific test routines that allows the user to perform full automatic test procedures. You can support an inexperienced person; with generated step instruction which makes the test procedure easy for them.

DUT Information

In this operating mode you can enter Information about the DUT.

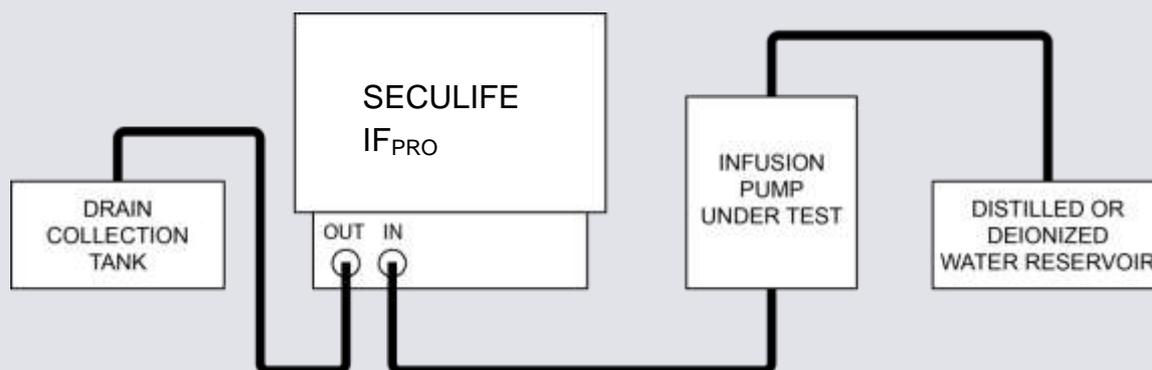
System tools

In this mode you can configure the SECULIFE IF_{PRO}.

Running a flow test

1.) Fluid connections DUT and SECULIFE IF_{PRO}

To start a measurement you have to make a fluid connection between the DUT and the SECULIFE IF_{PRO}. The illustration below illustrates a typical connection. All modules and their connections are identical, therefore only a single module is detailed. The process may then be repeated for the additional modules installed, for additional infusion pumps under test. The procedure is the same and you can easily switch between single channels by using the touchscreen function.



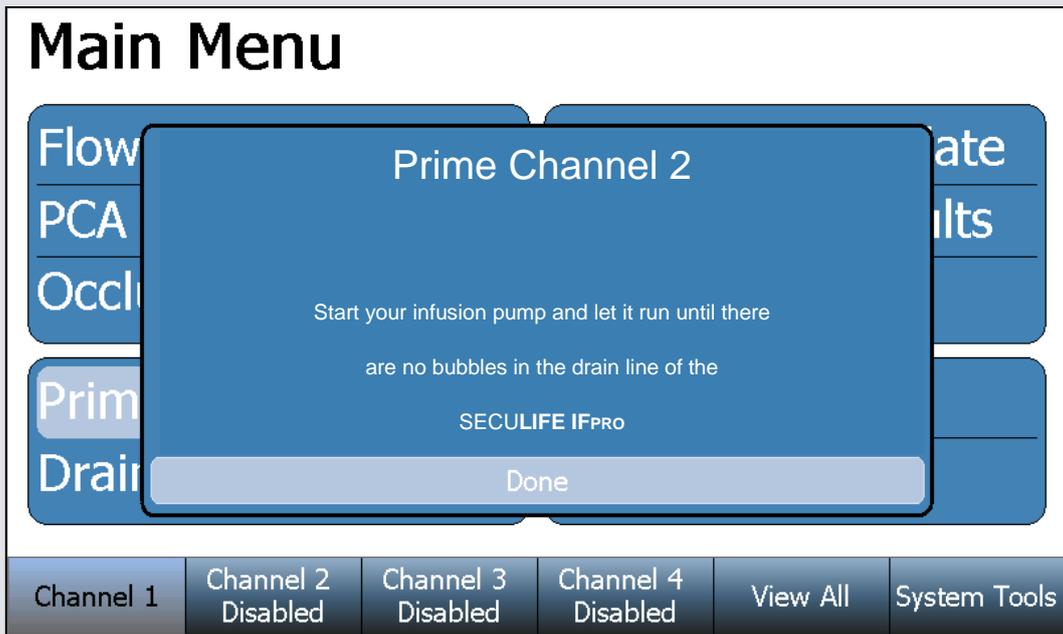
In the following picture you can see the test setup with SECULIFE IF_{PRO} and the testing infusion pump. The syringe will be connected on the inlet SECULIFE IF_{PRO} and a cup will be used as a collection tank on the outlet of the testing device. Fill the syringe with distilled water only. Therefore you can use the same cup.



Once the fluid connections have been made, the system should be primed. Use the onscreen prime button for the channel connected. The fluid source should be run until no air bubbles are seen in the outlet tube. The following instruction window will appear and the flow module will begin priming the connection tubing. Start the infusion pump to allow fluid to dispense through the flow module.

Note: A higher infusion pump flow rate will expedite the priming process.

Press the Done key when no visible bubbles remain in the drain line tubing.



2.) Define settings and run measurements

To run a flow test, press the flow test button on the main menu. After that the flow test setup screen will appear which includes test parameter for example flow rate, back pressure, test tolerance und test duration. If you want to test the flow rate, regulate the desired value on the infusion pump and specify the desired test tolerance. Press the start key to start the measurements.

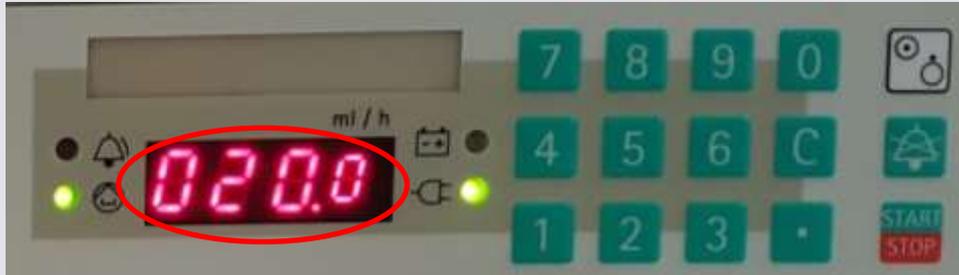


While testing the infusion pump you can view the data also on a graph for each channel. Use the keys right on the display, do view the desired display. Use the **Hide Graph** key to return to the previous display.



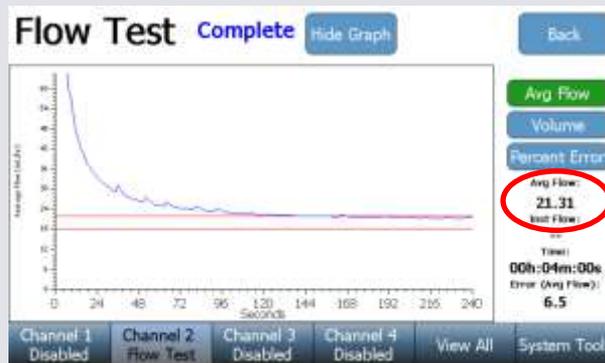
3.) Testing the flow rate

The flow rate is checked by comparing the value shown on the display of the DUT (here: 20 ml/h) with the value issued by SECULIFE IF_{PRO} (here: 21, 31 ml/h).



Detail: DUT Display

On the SECULIFE IF_{PRO} a flow rate of $20 \frac{ml}{h}$ with 2 % deviation is adjusted. The flow rate will be higher first, until the infusion pump will level to the desired value ($20 \frac{ml}{h}$).



Detail: SECULIFE IF_{PRO} display

After hiding the graph the following measurements will be shown in tables:

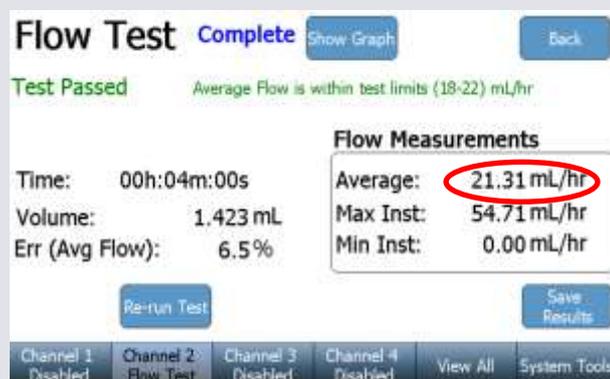
Average > average flow per hour

Instant > continues flow rate

Max Instant > biggest flow rate while testing

Min Instant > smallest flow rate while testing

Error > % difference from desired value



PCA Tests

On a PCA test, the bolus shot will be tested. A bolus is defined as a discrete amount of fluid, which will dispense in a short time period.

1.) Connection SECULIFE IF_{PRO} with DUT

The connections made are the same, as seen in flow testing.

2) Define settings and run measurements

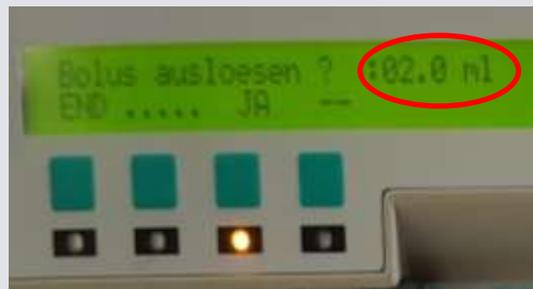
To run a PCA test, press the PCA test button on the main menu. After that the PCA test setup screen will appear which includes test parameter for example basal flow rate, back pressure, bolus test configuration and test duration. If you want to test the bolus test configuration, regulate on the infusion pump the desired value for bolus (here: 2, 0 ml) and enter the desired test tolerance. Press the start key to start the measurements.



3) Testing bolus

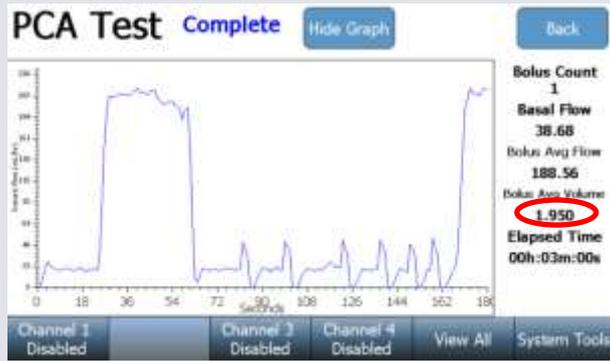
After settings are made you can test the bolus shot.

A bolus shot with a total volume of 2 ml was set on the DUT and infusion started.



Detail: DUT Display

Bellow in the graph the bolus shot is checked by comparing the value shown on the display of the DUT (here: 2, 0 ml) with the value issued by SECULIFE IF_{PRO} (here: 1.95 ml). The test specification (test tolerance of bolus flow) should also be in the test tolerance (here: +500 – 100 ml/hr.)



Detail: SECULIFE IF_{PRO} display

After hiding the graph the following measurements will be shown in tables.

PCA Test Complete

Test Passed

Bolus Average Flow is within test limits (-98-502) mL/hr

Time: 00h:03m:00s | Basal Flow: 38.68 mL/hr

Total Volume: 3.486 mL | Bolus Count: 1

	1	1	5	4	Avg
Bolus Flow (mL/hr)	188.56	180.86	14.26	195.12	188.56
Bolus Volume (mL)	1.950	1.898	0.004	1.902	1.950
Bolus Duration (s)	37	38	1	36	37.23
Bolus Interval (s)	26	35	27	15	58.31

Re-run Test | Save Results

Channel 1 Disabled | Channel 2 Complete | Channel 3 Disabled | Channel 4 Disabled | View All | System Tools

Occlusion test

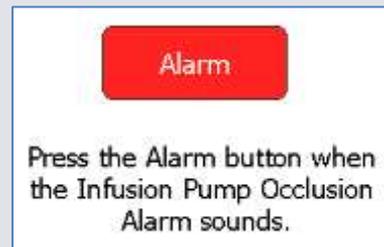
An occlusion is a blockage of fluid leads. This can be caused, when the tube of the infusion pump is flexed and the SECULIFE IF_{PRO} cannot prime the fluid. The pressure in the infusion pump will therefore rise continuously. There is a pressure gauge on the infusion pump, but it is only roughly scaled.

1.) Connection SECULIFE IF_{PRO} with DUT

The connections made are the same, as seen in flow testing.

2) Define settings and run measurements

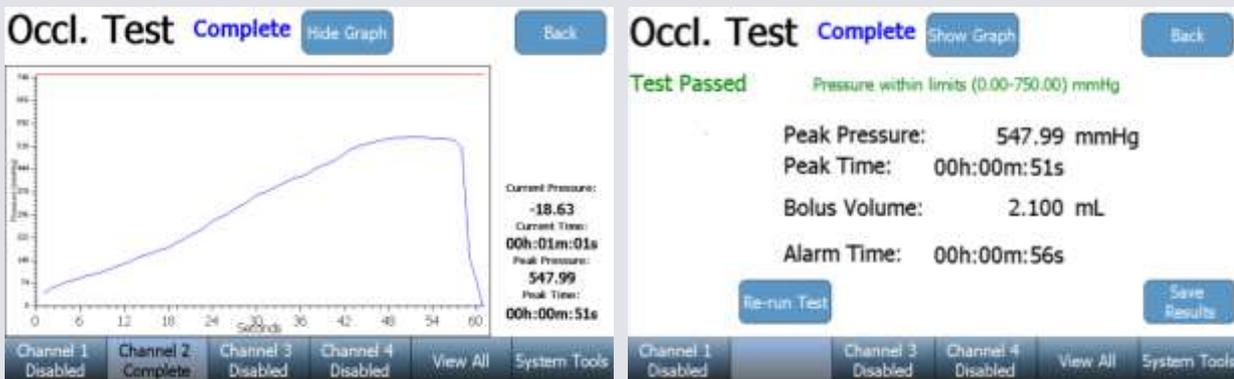
To run an occlusion test, press the occlusion test button on the main menu. After that the occlusion test setup screen will appear which includes test parameter for example upper limit and lower limit for occlusion testing. Run an occlusion test only with a connected pump. Begin an infusion with the connected pump. Once the SECULIFE IF_{PRO} senses pressure from the infusion pump, the SECULIFE IF_{PRO} key will enable (change to a red color as shown below). To complete the occlusion test, press the SECULIFE IF_{PRO} alarm key immediately after the infusion pump occlusion alarm occurs. The pressure should be between the specified test tolerances.



3.) Testing occlusion

After occlusion alarm occurs and the alarm button pressed, the testing device will automatically end the measurements.

After hiding the graph the following test results can be displayed (here: Pressure is within limits (0.00-750) mmHg)

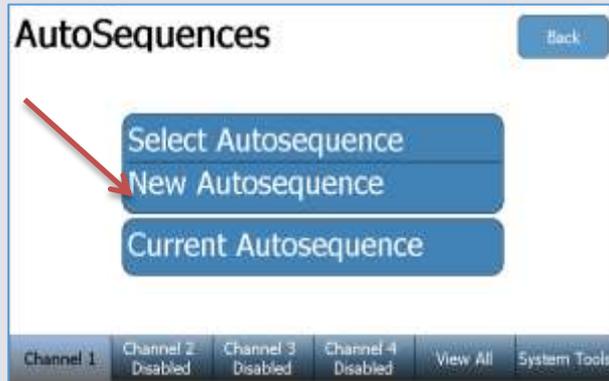


Detail: SECULIFE IF_{PRO} display

Creating an Auto Sequence

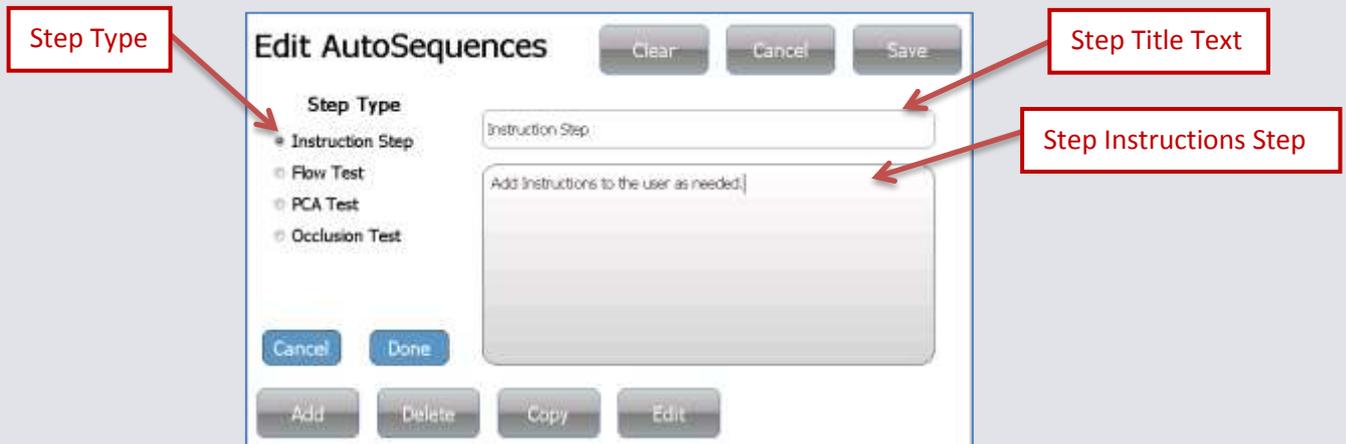
An Auto Sequence is a repeatable set of consecutive tests to be performed on a single device. The Auto Sequence can consist of any number or combination of Instruction Steps, Flow Tests, PCA Tests, and Occlusion Tests.

To create an auto sequence Press the **Auto Sequences** key and the following screen will appear:



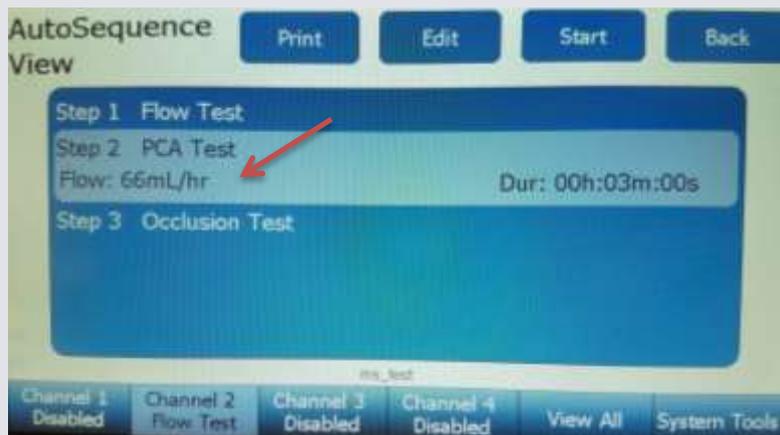
Press the **New Auto Sequence** key to open a blank Auto Sequence summary (as shown below). Press the **Add** key from this summary screen to create a step(s) of the Auto Sequence.

The auto sequence can be programmed as in the picture shown below.



For flow test, PCA test und occlusion test the identical parameter to an individual test can be used.

After the Instruction Step information has been updated, select the **Done** key to return to the AutoSequence summary screen. You can see short information's about the single steps.



Drain

Drain fluids

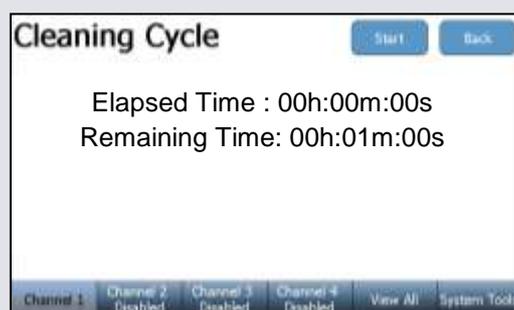
From the selected Channel's Main Menu press the **Drain** key. The following instruction window will appear and the flow module will begin draining.



Press the **Done** key when no fluid remains in the drain line tubing.

Cleaning

Flow module cleaning must be performed periodically to remove any possible contaminants or debris in the flow and measurement path. From the selected Channel's Main Menu press the **Clean** key. The following screen will appear:



SECULIFE IF_{PRO} is compatible with USB type barcode scanners. These scanners can be helpful when entering DUT information. They will act as keyboards that convert barcodes data into text. When the SECULIFE IF_{PRO} is ready to accept the desired text, simply trigger the barcode scanner instead of typing in the barcode text.



Software

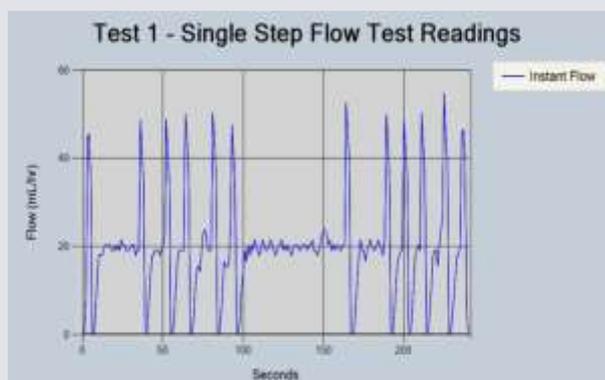
You can use the GMC-I Flow.exe Software, to display the saved test results from an usb flash drive.



Open the desired file with xxx.dat ending.



You can view the following graph with the test software to see some test details.

A screenshot of the 'Seculife IF Pro Information' software interface. It displays various fields for test information. At the top, it shows 'Id: 1000' and 'Date: 04/25'. Below that, 'Sensor: FMI_avg_flow' and 'Cal Due: 04/25'. The 'DUT Information' section has fields for 'Turner', 'ID #', 'S/N', and 'Test Date: 14/08'. The 'Test Steps' section shows a table with columns 'Step Title' and 'Status'. The first row is 'Test Summary' with a status of 'Passed'. The second row is 'Single Step Flow Test' with a status of 'Passed'. The 'Test Details' section shows: 'Volume: 1.423 mL', 'VG Flow: 21.31 mL/hr', 'Instant Flow: 0.00 mL/hr', 'Percent Error: 0.5%', and 'Duration: 00:04:00 hr:min:sec'.

GMC INSTRUMENTS

