OPERATION MANUAL

Swift 25.0

Flow Meter
Swift 25.0-9800
Rev A

Met One Instruments

POWERED BY ACOEM

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Met One Instruments

POWERED BY ACOEM

Met One Instruments, Inc. is now part of the Acoem international group of companies.

Met One Instruments has been designing and manufacturing class-leading meteorological, ambient air sensing, and air quality monitoring instrumentation since its inception in 1989. Its line of robust industrial-grade meteorological equipment, air particulate monitoring equipment, and indoor air quality monitoring systems have set the standard for the industry. Headquartered in Grants Pass, OR, Met One Instruments, Inc. is fueled by a dedicated expert team who is diligently working to advance the technology required to ensure continued improvements in human and environmental health now and for generations to come.

Acoem is committed to helping organizations and public authorities find the right balance between progress and preservation — safeguarding businesses and assets and maximizing opportunities while conserving the planet's resources. Headquartered in Limonest, France, Acoem delivers unrivaled inter-operable AI-powered sensors and ecosystems that empower our customers to make enlightened decisions based on accurate and timely information.

In 2021, Acoem acquired Met One Instruments, marking a pivotal moment when two industry leaders in the air quality monitoring sectors converged — creating a single, stronger and more future-focused provider of holistic environmental monitoring solutions. Now, **Met One Instruments Powered by Acoem** has opened new possibilities through an extensive offering of class leading, multi-parameter environmental monitoring and industrial reliability solutions. These integrated measurement systems, technologies, and services deliver comprehensive solutions for a range of applications, including environmental research, regulatory compliance, and industrial safety and hygiene.

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1. INTRODUCTION

1.1 About This Manual

This document is organized with the most important information toward the front of the manual. All users should read and understand the sections on setup, operation, and field audits. Toward the back are sections that provide in-depth information on subjects such as diagnostics and accessories. These sections should be consulted as needed.

1.2 Technical Service

Should support still be required after consulting the documentation, contact one of the expert Met One Instruments, Inc. Technical Service representatives during normal business hours of 7:00 a.m. to 4:00 p.m. Pacific Time, Monday through Friday. In addition, technical information and service bulletins are often posted on our website. Please contact us and obtain a Return Authorization (RA) number before sending any equipment back to the factory. This allows us to track and schedule service work and to expedite customer service.

Contact Information:	Tel: + 541 471 7111 Fax: + 541 471 7115 Web:http://www.metone.com Email:service@metone.com	**Address:**	Met One Instruments, Inc. 1600 Washington Blvd Grants Pass, Oregon 97526 U.S.A.

Please have the instrument serial number available when contacting the manufacturer. On most models manufactured by Met One Instruments, it will be located on a silver product label on the unit and printed on the calibration certificate. The serial number will begin with a letter and be followed by a unique five-digit number such as U15915.

1.3 Swift 25.0 Flow Meter

The Met One Instruments, Inc. Model Swift 25.0 is a multi-function Flow Meter specifically designed for accurate flow measurements from 2.0 to 25.0 liters per minute (LPM). The device's easy-to-read display shows Flow Rate, Flow Temperature and Ambient Pressure. Flow measurements are traceable to NIST standards, and a certificate of calibration is provided with each unit. The Swift 25.0 comes complete with a portable carrying case, flow adapters and a USB-C charging cable.

Figure 1-1 Swift 25.0 Flow Meter

1.4 Swift 25.0 Specifications

Table 1-1 Swift 25.0 Specifications

PARAMETER	SPECIFICATION
Flow Range	2 to 25 LPM
Flow Accuracy	±1% of reading to -10°C
Display Resolution (Flow)	0.01 LPM
Flow Units	LPM (Liters Per Minuet) or SLPM (Standard Liters Per Minuet)
Barometric Pressure Range	400 - 900 mmHg (533 – 1200 mbar)
Barometric Pressure Accuracy	± 1.125 mmHg (± 1.5 mbar) @ 25°C 750 mmHg ± 1.875 mmHg (± 2.5 mbar) error band between -20°C to 85°C
Standard Conditions	25°C and 101.3 kPa
Display Resolution (Pressure)	0.1 mmHg (0.133 mbar)
Pressure Units	mbar, mmHg, kPa, inHg or Pa
Pressure Drop	7 mmHg @ 25 LPM
Temperature Accuracy	± 0.2°C
Temperature Probe Accuracy	± 0.2°C
Temperature Resolution	0.01°C/°F
Temperature Units	°C or °F
Relative Humidity Range	0 to 100% RH non-condensing
Relative Humidity Accuracy	±3.5% RH
Data Storage Capacity	200 records, snapshot method utilizing power button
Electrical	
DC Power	5 VDC, 500 mA max
Charging	USB-C
Serial	USB-C
Battery	Internal 3.7V, 2000mAh (7.4Wh) Lithium-ion battery
Battery Life	35 hours
Software	
Driver	CP210X (MS Windows only)
Software	Swift Utility software (MS Windows only)
Bluetooth App	In development, instrument is Bluetooth ready
Interface	
Display	Black on White, Backlit, Sunlight Readable, 320 x 154 Resolution
Display Parameters	Flow Rate: LPM or SLPM Barometric Pressure (ambient): mbar, mmHg, kPa, inHg or Pa Temperature: °C or °F, in flow or external if probe is plugged in Relative Humidity (ambient): % Average Flow Rate: units will follow Flow units.

	Battery Level and Charge Status Bluetooth connection
Physical	
Weight	19.8 oz. (561g)
Size	4 in. wide x 6.1 in. height x 1.35 in. depth (10.6 cm x 15.5 cm x 3.4 cm)
Outlet Fitting Size	1.25” I.D (31.75 mm) slip on with O-ring seal
Case Size	13" x 11.4" x 5.5" (33 cm x 29 cm x 14 cm)
Environmental	
Operating Temperature Range	-20°C to +50°C
Operating Humidity	0 to 100% Non-condensing
Water Resistance	Enclosure is water resistant. Connections are IP67 rated.

Specifications may be subject to change without notice.

2. UNPACKING

Before operating the Swift 25.0 for the first time, it is recommended to fully charge the flow meter using the included USB cable.

Use the following information to correctly assemble, configure, and deploy the Swift 25.0 Flow Calibrator. There are no special precautions or handling concerns except for the normal level of care required for handling scientific equipment. Refer to the instructions and diagrams on the following pages.

When unpacking the Swift 25.0 flow meter and accessories, compare them to the check off list below to make sure all items are present.

Any damage incurred to the equipment during shipping is the responsibility of the carrier. If any damage to the shipment is noticed before unpacking, **a claim must be filed with the commercial carrier immediately**. Follow any special unpacking instructions provided by the carrier as all items are carefully removed from the containers and each component inspected. It is recommended to document and photograph all damaged packages and items before, during, and after unpacking them. Contact Met One Instruments (see section 1.2 of this manual) to arrange for any replacement items needed.

2.1 Shipment Contents

The normal instrument configuration is supplied with the following standard components and accessories:

Swift 25.0 Flow Meter Check Off List

- ☐ Operator's Manual
- ☐ Calibration Certificate (NIST)
- ☐ Ambient Temperature Probe
- ☐ Temperature Probe Cable Clip
- ☐ Bluetooth Antenna (for future use with mobile app)
- ☐ Flow Adapter: for 3/8" I.D. tubing (SASS Application)
- ☐ Black EDPM Tubing- 4' (1.22 m) of 1/4" I.D x 3/8" O.D. (6.35 mm I.D x 9.53 mm O.D.)
- ☐ USB Cable
- ☐ Carrying Case
- ☐ Software & Driver Available at metone.com

The standard components for the Swift 25.0 are shown in **Figure 2-1** Standard Components for the Swift 25.0Figure 3-1 Swift 25.0 Front View.

Figure 2-1 Standard Components for the Swift 25.0

Please keep all the special shipping items (box, foam packing material, etc.) used to ship the Swift 25.0. They should be reused if the Swift 25.0 is to be transported (changing site locations, returning to the factory, etc.). Contact Met One Instruments (see section 1.2 of this manual) for replacement packing materials if necessary.

2.2 Charging the Swift 25.0

The battery is charged using the included USB cable.

1. Insert the USB-C end (small oval plug) into the Swift 25.0 on the bottom left side of the unit.
2. The USB-A end (rectangle plug) can connect to standard USB port or to a standard 110V wall outlet by using a USB wall adapter such as a cell phone charging box (not supplied).

See Section 3.3.1 Status Bar - Battery Life Icon for more information.

3. FUNCTIONS AND CONFIGURATIONS

Figure Figure 3-1 Swift 25.0 Front View shows the Multifunction Button, User Interface Display, Inlet Cap and Outlet Fitting.

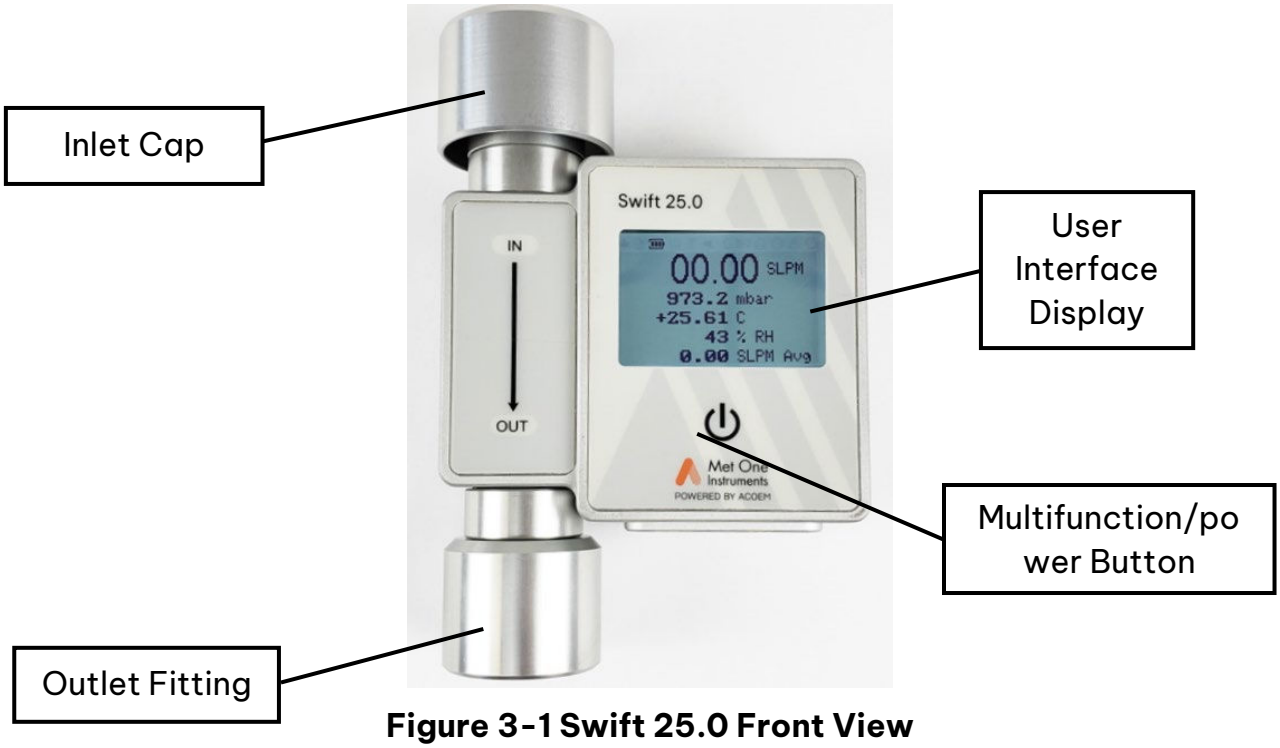


Figure 3-1 Swift 25.0 Front View

3.1 Multifunction Button

The Multifunction Button shown in **Figure 3-1** performs the functions in the sections below.

3.1.1 Power

- Press the power button once to turn the power on.
- Press and hold down the power button for five seconds to turn the power off.

  IMPORTANT: Be sure to allow at least ten seconds for the Swift 25.0 to complete the power-on cycle and initialization before mating it to a flow inlet.

3.1.2 Data Capture

- Press the power button once to save all displayed data along with the date and time while the instrument is powered on. A Page Icon will appear at the top of the display indicating a screenshot is being saved. When saved, the page icon will disappear.

  See section 3.8 Configuration Software for data retrieval.

  NOTE: Data is stored in a rotational buffer of 200 records with first in first out, meaning when the 200 records are full, the first record is deleted when the next record is stored. Data is retained when the unit is powered off.

3.1.3 Bluetooth

- When the Swift 25.0 is first powered on, and the Bluetooth antenna installed, a Bluetooth signal will begin broadcasting. The signal broadcast is indicated by the blinking Bluetooth icon found in the status bar (see section 3.3.2 Status Bar - Bluetooth Icon).
- When the Bluetooth icon is solid (no longer blinking), a Bluetooth connection has been established with a mobile device.
- The Bluetooth signal will only broadcast for six minutes if a connection is not made. After six minutes the signal will end, and the icon will disappear from the status bar.
- To start the Bluetooth signal broadcast again, press the power button twice in quick succession. The Icon will begin to blink for another six minutes or until a connection is made with a mobile device.

3.2 Function Test

Before operating the Swift 25.0 for the first time, it is recommended to fully charge the flow meter using the included USB cable.

Complete the following steps to verify proper operation.

1. Press the Power button to turn on the power.
2. Observe the Met One Instruments, "Powered by Acoem" startup screen for three seconds, then the Product Model and Firmware screen for three seconds, the Operate screen will then appear.
3. Hold the Power button for five seconds to power down the flow meter.
4. Unit is ready for use.

3.3 User Interface Display

The user interface display is shown in **Figure 3-2**. The display's back light is always on with one fixed level of intensity. The display is direct sunlight readable. The user interface contains the following readings in order from top to bottom:

- The status bar contains the battery life indicator, Bluetooth connection status and screenshot Icon.
- Flow rate in liters per minute (LPM) or standard liters per minute (SLPM)
- Barometric pressure in mbar, mmHg, kPa, inHg, or Pa
- Temperature in °F or °C.
- Relative humidity (RH) in %.
- Average Flow. Averaged over 10 seconds.
  NOTE: The Engineering units of measurement can be changed for user preference using the Swift Utility software. (Reference Swift Utility software manual.) Example: Fahrenheit to Celsius

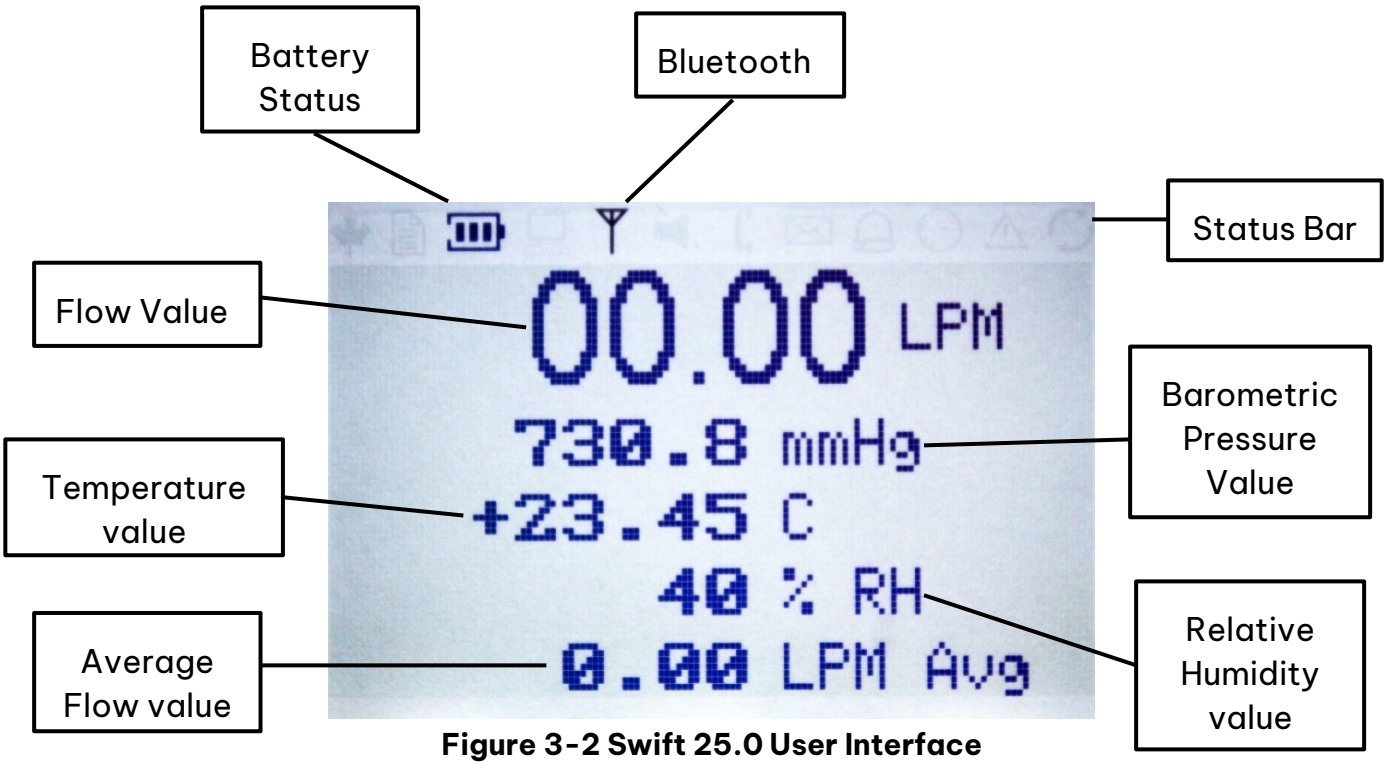
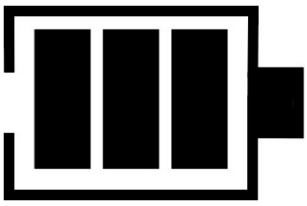


Figure 3-2 Swift 25.0 User Interface

3.3.1 Status Bar - Battery Life Icon

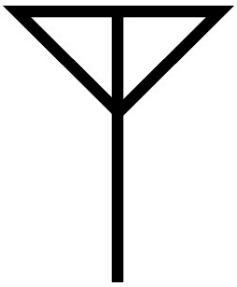
The battery life icon is located in the status bar at the top of the display. Charging is indicated by three strobing bars within the battery icon. A completely discharged battery will fully charge in approximately eight hours. Battery life is roughly measured in 33% increments with each bar. As battery life depletes, the bars will disappear, one at a time.



NOTE: It is recommended that the battery be fully charged before operating the Swift 25.0 for the first time.

3.3.2 Status Bar - Bluetooth Icon

The Bluetooth icon is located in the status bar, next to the battery life icon, at the top of the display. It is an antenna symbol that will flash when advertising a signal. The broadcast name is "Swift 25". Connect the Swift 25.0 to a mobile device using the Swift Bluetooth mobile application. The application will be available for both Apple and Android devices.



Refer to the Swift Bluetooth application manual for more information.

3.3.3 Flow Rate Measurement

Flow rate is reported on the first line of the display, below the status bar **(See Figure 3-2)**. Ambient temperature, barometric pressure, and relative humidity are used are used to calculate the flow rate.

Default flow rate units are liters per minute (LPM). Displayed flow rate measurement units can be changed from volumetric liters per minute (LPM) to standard liters per minute (SLPM) using the Swift Utility software or Swift Bluetooth app described in their respective manuals.

The manuals and Swift Utility software can be downloaded at metone.com under the support tab. If assistance is needed, please contact the service department.

3.3.4 Barometric Pressure Measurement

Barometric pressure readings reported on the second line of the display. The reading comes from an independent pressure sensor, not in the flow path.

Default pressure units are mmHg. Displayed pressure units can be changed to mbar, inHg, mmHg, Pa, or kPa using the Swift Utility software or Swift mobile application.

3.3.5 Temperature Measurement

Temperature readings are reported on the third line of the display. Temperature readings are measured either from the flow chamber or from the external probe when attached. Airflow must pass through the unit to obtain an accurate temperature reading when no probe is attached. The measurement source will automatically switch to the external probe when plugged in.

Flow chamber temperature readings may be affected by external factors.

Default temperature units are Celsius (°C). Displayed temperature units can be changed to Fahrenheit (°F) using the Swift Utility software or Swift mobile application.

3.3.6 Relative Humidity Measurement

Relative Humidity is displayed on the fourth line of the display. The reading comes from an independent sensor, not in the flow path. The units are displayed as a percentage (%).

3.4 Inlet Cap

Figure Figure 3-3 shows the Swift 25.0 Inlet Cap assembly. It is designed to allow airflow through the inlet but prevent rain and debris from damaging the internal sensors. The inlet cap is a two-piece assembly which houses a mesh screen to prevent debris and bugs from entering the device. See section 5.2 Inlet Screen Cleaning for disassembly and maintenance.

Figure 3-3 Inlet Cap Screen

Caution: Do not carry the instrument by the Inlet Cap or the Outlet Fitting. They are held in place by the friction of O-rings and could come loose.

3.5 Outlet Fitting

Figure 3-1 shows the location of the Swift 25.0 outlet fitting which is designed to fit on the down tube of the ambient air monitor equipment with 1.25" (31.75 mm) outer diameter (O.D.) inlets, the standard size of Met One Instruments, Inc. BAM monitors. The flow calibrator can be used on FRM and FEM ambient air samplers including these Met One Instruments, Inc products:

- BAM 1020
- BAM 1022
- E-SEQ-FRM
- E-FRM-DC
- E-BAM Plus
- E-BAM
- SASS and SuperSASS
- For a complete list, contact sales@metone.com

3.6 Electrical Connections

Figure 3-4 shows the bottom view which includes connection points and features.

- Bluetooth antenna connector.
- RH sensor vent. This vent has a special membrane to allow moisture to enter and not allow water or dust to enter the instrument.

  Important: Do not poke the membrane, it can easily be damaged allowing water or dust to enter the instrument.
- USB-C Port. For charging the internal battery, editing Engineering Units, and downloading data.
- Temperature Probe Connector.

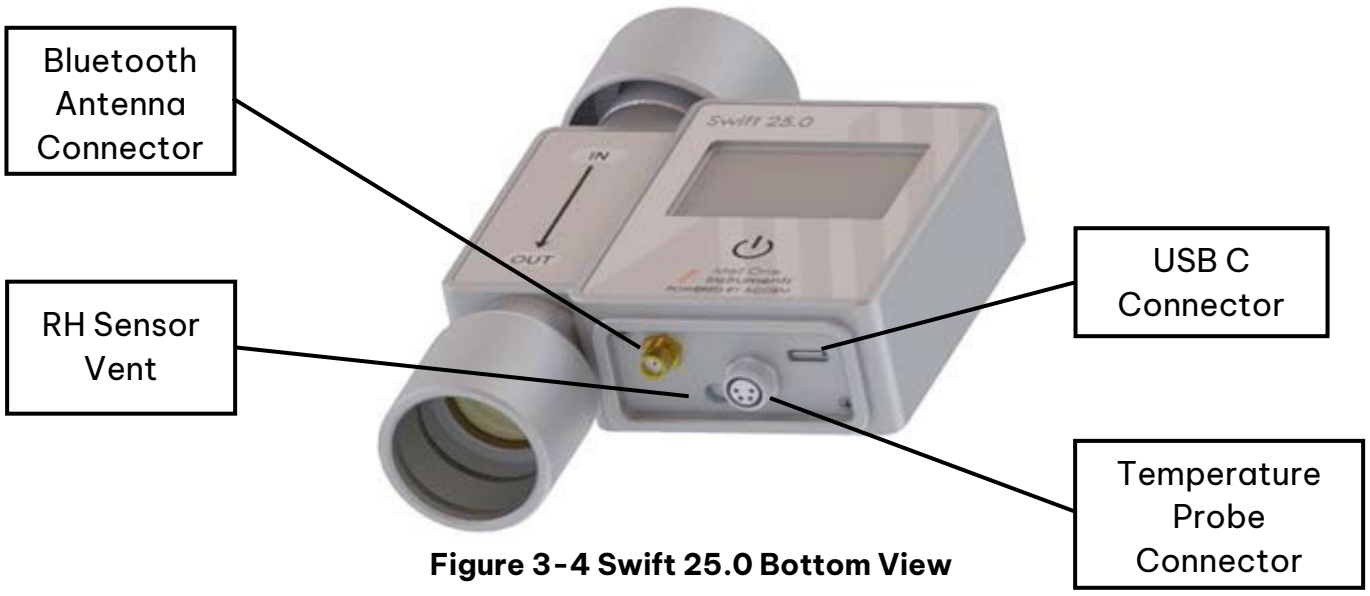


Figure 3-4 Swift 25.0 Bottom View

3.7 USB Driver Configuration

A Silicon Labs CP210x Driver for the USB connection must be installed before connecting to the USB Type C port on the Swift 25.0. This is compatible with a Windows operating system only. The USB driver can be downloaded from our website at https://metone.com/software/. This only needs to be done once for each computer that is used with the flow meter.

It is recommended that the unit be fully charged before operating the Swift 25.0 for the first time. The battery is charged using the included USB cable. Insert the smaller USB C into the Swift 25.0 on the left side of the unit. The USB "A" end of the cable can connect to any USB port or connect to a standard outlet by using a USB wall adapter.

3.8 Configuration Software

The Swift 25.0 features Utility software to change the temperature and pressure units, Download Snapshot data, and Tare or zero the flow sensor. The Swift Utility software can be downloaded from our website at https://metone.com/software/.

Use the setup wizard to install the software on a computer. Connect the flow meter to the computer with the USB cable. Open the Swift Utility software and select "GET" to load the device information.

Once the flow meter information is displayed, the temperature and pressure Engineering units can be changed using the drop-down menus. Temperature can be displayed in C (Celsius) or F (Fahrenheit). Pressure can be displayed in mbar, mmHg, inHg, Pa, or kPa. Press "Set" to change the displayed parameter.

3.8.1 Date and time

Important: Set the instrument to local Date, Time, and Engineering units prior to taking flow measurements.

See section 8.5 Date and Time For more information.

4. OPERATION

The Swift 25.0 should be powered on before mating to a unit for measuring flow rate. The Swift 25.0 performs a zero-flow measurement when first powered on. No air should be passing through the flow meter before energizing the unit. The Swift 25.0 is ready to begin sampling after a short boot up, approximately ten seconds. When the home screen is displayed, the instrument is ready for use.

The Swift 25.0 will provide readings for the following:

- Battery status.
- Bluetooth connection status.
- Flow rate in liters per minute (LPM) or standard liters per minute (SLPM).
- Barometric Pressure in mbar, mmHg, kPa, inHg, or Pa.
- Temperature in °F or °C., Relative Humidity (RH) in %.
- Average Flow. (Averaged over 10 second intervals).

Readings are updated on the display once per second. Refer to section 3.3 User Interface Display for more details about the displayed readings.

4.1 Installation

Install the Swift 25.0 by placing the outlet adaptor onto the flow inlet of the unit being tested. As was mentioned in section 3.5 Outlet Fitting, the adaptor will fit an inlet with an outer diameter of 1.25". There are two O-rings inside the outlet adaptor to seal the flow path. When pressing the flow meter on the inlet, two points of resistance will be felt from the O-rings. When the second point of resistance is passed and can go no further, the meter is fully seated.

Figure 4-1 Flow measurements on UUTs with standard 1.25" O.D. inlet

4.1.1 Bluetooth Antenna

1. Connect the Bluetooth antenna by gently mating the threaded collar of the antenna to the gold-colored connection point on the bottom of the Swift 25.0 **(shown in Figure 3-4)**.
2. Gently tighten the threaded collar untill it is finger tight.

Figure 4-2 Bluetooth Antenna

4.1.2 Temperature Probe

NOTE: When connecting or disconnecting the external temperature probe, the probe or internal temperature sensor reading will be displayed after a one second delay.

1. Connect the temperature probe by aligning the four pins in the blue connector with the holes of the silver connector, at the bottom of the Swift 25.0 **(shown in Figure 3-4)**.
2. Gently press the blue connector into the silver connector until it stops.
3. Twist the threaded collar of the blue connector clockwise until it is finger tight.

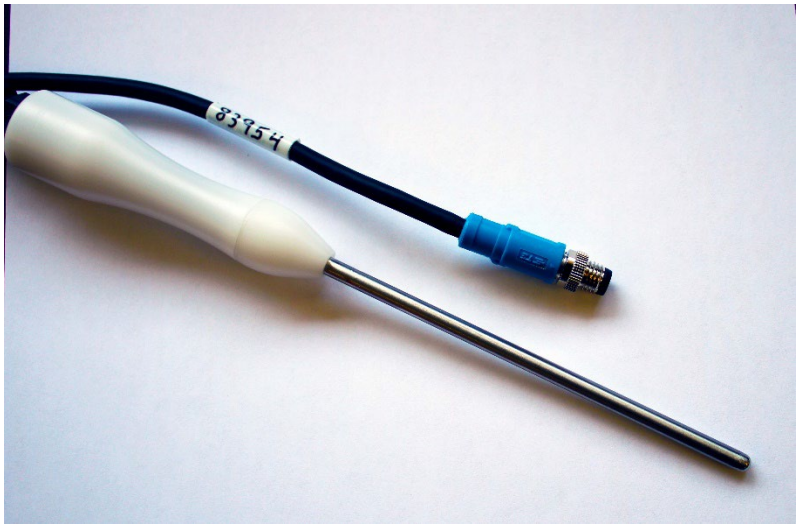


Figure 4-3 Temperature Probe

4.2 Data Collection

Utilize the Swift Utility software to retrieve captured data. See section 8.3 for more information.

4.3 Connecting to a SASS or other instrument with tubing

When connecting to a SASS or other instrument requiring tubing, use the flow adaptor and supplied tubing from the accessory kit as shown in **Figure 4-4**. Refer to the owner's manual of the specific instrument when performing a measurement, calibration, or audit.

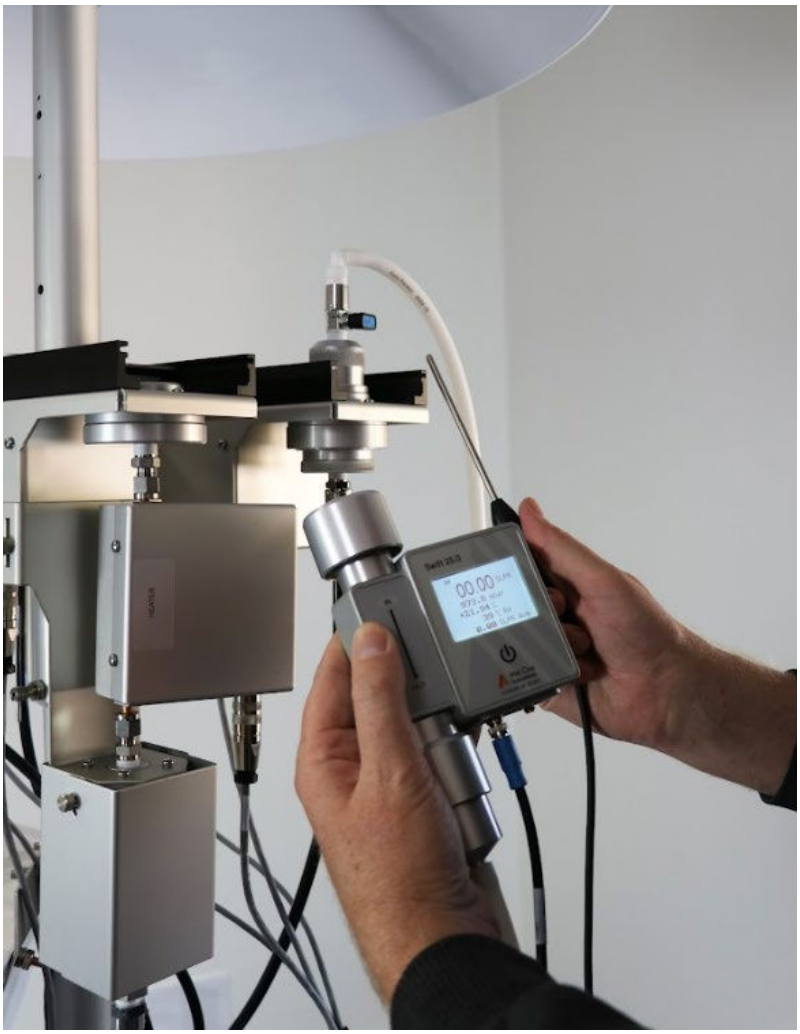


Figure 4-4 Connection to a SASS with Tubing Adaptors

4.4 Audit Sheet

Section 9 FLOW AUDIT SHEET contains an example audit sheet from a Met One Instruments BAM 1020. Refer to the owner's manual of the specific instrument when performing an audit.

4.5 Storing the Swift 25.0

It is recommended to store the Swift 25.0 and its accessories in the Hard Case for storage and transport. Leave the inlet cap and outlet fitting attached to the Swift 25.0.

5. MAINTENANCE AND TROUBLESHOOTING

This section provides information regarding routine maintenance, and field troubleshooting procedures.

5.1 Recommended Periodic Maintenance Table

The table below shows the recommended interval for the regular maintenance, field checks, and service tasks.

Table 5-1 Preferred Maintenance Period

Maintenance Item	Period
Factory Calibration	**12 months**
Clean Inlet Screen	**As Required**
Coin cell battery (replaced during factory calibration)	**12 months**

Request a factory calibration by calling Met One Instruments at + 541 471 7111 or email service at service@metone.com See section 1.2 Technical Service for more information.

5.2 Inlet Screen Cleaning

The Swift 25.0 inlet assembly is made up of two parts, the inlet cap, and the inlet screen holder. It is recommended to occasionally inspect and clean the inlet screen. The time interval between cleanings varies depending on the local particulate levels and time of year.

Figure 5-1 Inlet Assembly
(Inlet Cap - left, Inlet Screen Holder - right)

5.2.1 Disassembly

- To remove the inlet cap assembly from the Swift 25.0, hold the cap with a firm grip and pull in the opposite direction of the flow outlet.
- Separate the inlet cap from the inlet screen holder by gripping the cap with one hand. With the other hand, grip the portion of the inlet with the two grooves and pull the two pieces apart. It may be necessary to use a rocking motion while pulling.
    - The inlet cap may separate from the inlet screen holder leaving it still attached to the flow meter. If this happens, set the inlet cap aside, grip the inlet screen holder, and pull in the same direction as the cap, to remove it from the flow meter. You may need to twist the inlet while pulling.

Figure 5-2 Inlet Assembly
Inlet Cap – left, inlet screen holder – right.

5.2.2 Inspection and cleaning

1. Inspect the screen for any obstructions or debris.
2. Use compressed air to blow away anything stuck to the screen.
    a. A medium bristled nylon or natural bristled brush may be used to remove anything left on the screen.
3. Use compressed air again to blow away any leftover debris removed by the brush.
4. Reassemble the inlet assembly by pressing the inlet cap back on the inlet screen holder. A snap should be felt when the O-ring is properly seated.
5. Install the inlet assembly by inserting the grooved portion of inlet screen holder into the flow meter inlet. Two snaps should be felt as the grooves lock in with the inlet O-rings.

5.3 Basic Problem and Cause/Solution Table

The following table contains information on some of the more common problems that may be encountered, and some steps to identify and remedy the problems. Met One Instruments welcomes customer suggestions for new items to be included in this section for future manual revisions. If the solution cannot be found in the following table, then contact one of our expert service technicians for help in resolving the problem.

Table 5-2 Trouble Shooting Cause and Solutions

Problem:	**The flow meter will not turn on**
Cause/Solution:	• The battery needs to be charged. ○ Connect the USB charging cable to the Swift 25.0 and appropriate power supply.

Problem:	**The reported flow is significantly lower than expected**

Cause/Solution:	• The flow meter was powered on while connected to a unit to test with flow engaged. The Swift 25.0 performs a zero-flow measurement when first powered on.
	  ○ Remove the Swift 25.0 from the UUT and cycle power.
	• The flow meter was powered on in windy ambient conditions.
	  ○ Cover the inlet while power cycling the unit.

Problem:	**The temperature does not match expected ambient conditions**
Cause/Solution:	• Airflow must pass through the unit to obtain an accurate temperature reading. ○ Ensure the Swift 25.0 is connected to equipment with air flow.

Problem:	**The time stamp data is not correct after setting with utility software**
Cause/Solution:	• Internal coin cell is dead and needs to be replaced.

5.4 Coin Cell Battery Replacement

The Swift 25.0 Flow Meter uses a CR1220 coin cell battery to keep the correct date and time when screen shot data is stored.

If the captured data does not display the correct date and time the coin cell battery should be replaced. Use the instructions below to replace the CR1220 coin cell battery.

5.4.1 Back Panel Removal

- Turn the Swift 25.0 off and remove the 6 screws from the back panel.
- A plastic screwdriver or fine pick may be needed to gently lift the back panel.

  NOTE: Be careful not to dislodge the rubber O-ring gasket seated around the perimeter under the battery cover.

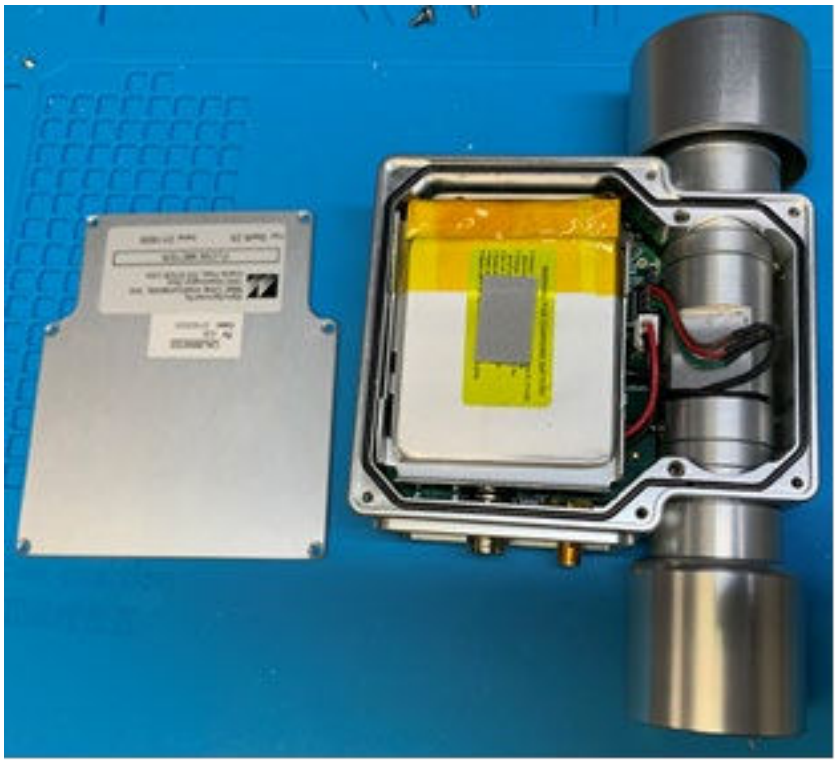


Figure 5-3 Back Panel Removal

5.4.2 Remove Main Battery

- Disconnect the battery pack from the PCB. Remove battery pack.

Figure 5-4 Battery Removal

5.4.3 Remove Battery Tray

- Unfasten the battery tray by removing the 2 panhead screws with a Phillips screwdriver and lift the tray out exposing the PCBA board underneath.

Figure 5-5 Battery Tray Removal

5.4.4 Replace the Coin Cell Battery

- Release the Battery by pressing the retainer spring to the outside edge of the battery. The battery should pop out. You may need to use a fingernail or a pencil eraser to push the retainer spring out of the way.
- Install a new coin cell battery (positive side facing out) by sliding one end the battery under the two small tabs, opposite to the retanier spring. Push down on the battery allowing the spring to lock in place with a faint click.

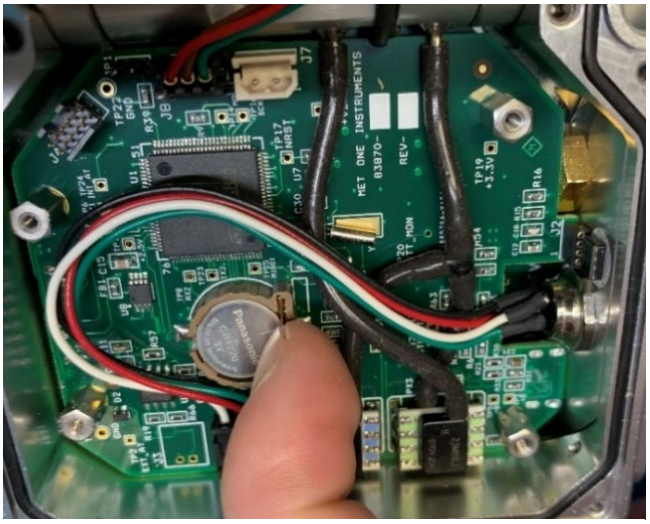


Figure 5-6 Coin Cell Battery

5.4.4.1 Reassembly

1. Screw the battery tray back in place using the two panhead screws.
2. Connect the battery pack connector to the PCBA.
3. Set the battery pack into the battery tray and route the battery cable nicely on the side of the tray.
4. Put the back panel back in place and secure with the six screws.
    - In order to power the flow meter back on after the main battery has been unplugged, external power must be applied.
5. Connect the USB-C cable connector to the port at the bottom of the Swift 25.0 and the other end of the cable to a power source.
6. Press the power button and allow the flow meter to fully power on.
    - The date and time will need to be reset.
7. Refer to section 8.5 Date and Time for setting the local date and time.

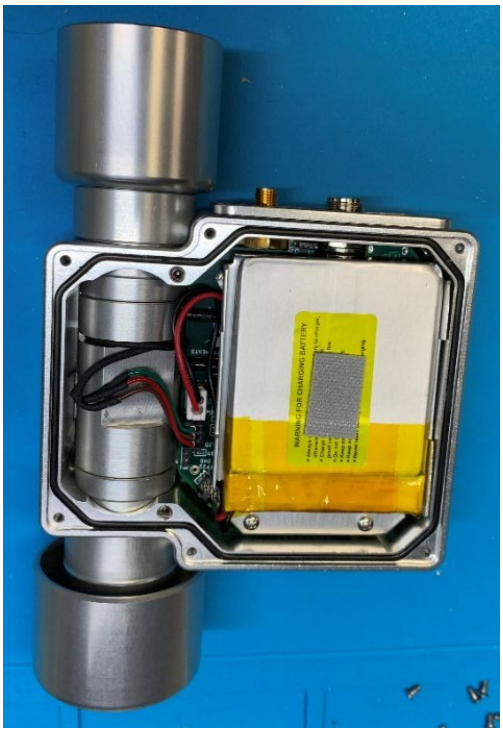


Figure 5-7 Reassembly

6. SPARE PARTS AND ACCESSORIES

6.1 Consumables, Replacement Parts, and Accessories

The following parts are available from Met One Instruments for maintenance, replacement, service, and upgrades. If unsure about a part, please contact the Service department and provide the serial number of the Swift 25.0.

Table 6-1 Parts and Accessories

Description	Part Number
USB CABLE, TYPE A MALE TO TYPE C MALE, 3 FEET	**502116**
SWIFT 25.0 CASE	**83959**
INLET ASSEMBLY	**83985**
OUTLET ASSEMBLY	**83986**
OUTLET FITTING O-RINGS	**720124**
TUBING, EPDM RUBBER, 1/4" I.D. x 3/8" O.D., 4 FEET	**960057**
ADAPTOR BARB	**83953**
AMBIENT TEMPERATUE PROBE	**83954**
BLUETOOTH ANTENNA	**80792**
COIN CELL BATTERY	**390099**

7. SWIFT UTILITY SOFTARE

The Swift Utility Software supports all three Swift models: Swift 6.0, Swift 20.0, and Swift 25.0. The Swift 25.0 supports more features than the other two models, so if the software detects a Swift 25.0 is connected, then those extra options will become available. The further sections in this document will expand on these features.

7.1 Menu Bar

The menu bar can be found in the upper right corner of the main screen, directly below the Acoem "A" symbol and Swift software title. The bar includes About and File tabs.

7.1.1 File Tab

The file tab includes a dropdown menu for language options and Quit.

7.1.1.1 Language

Pressing the language button will show the available language options. A checkbox indicates which language is currently selected. To change the language shown by the user interface, simply click on the desired language shown in the dropdown. When a new language is selected, the main screen will refresh and reflect the chosen language.

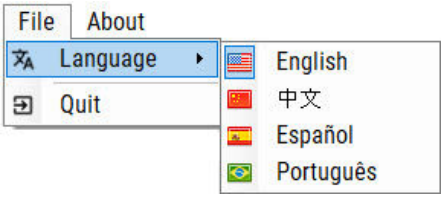


Figure 7-1 File Tab

7.1.1.2 Quit

The Quit option in the file tab will close the SWIFT program.

7.1.2 About

Pressing the about tab on the menu bar will open the software's information page. The information page includes the Acoem Logo, Met One Instruments company name, software name, software version and a clickable link leading to the Metone.com web page.

Figure 7-2 About Screen

7.2 Establishing a Connection

Use the setup wizard to install the software on your computer. Connect the flow meter to the computer with the USB cable. Open the Swift Setup Software and select the GET button, outlined in green at the bottom left side of the start screen, to load the device information **(See Figure 7-3)**.

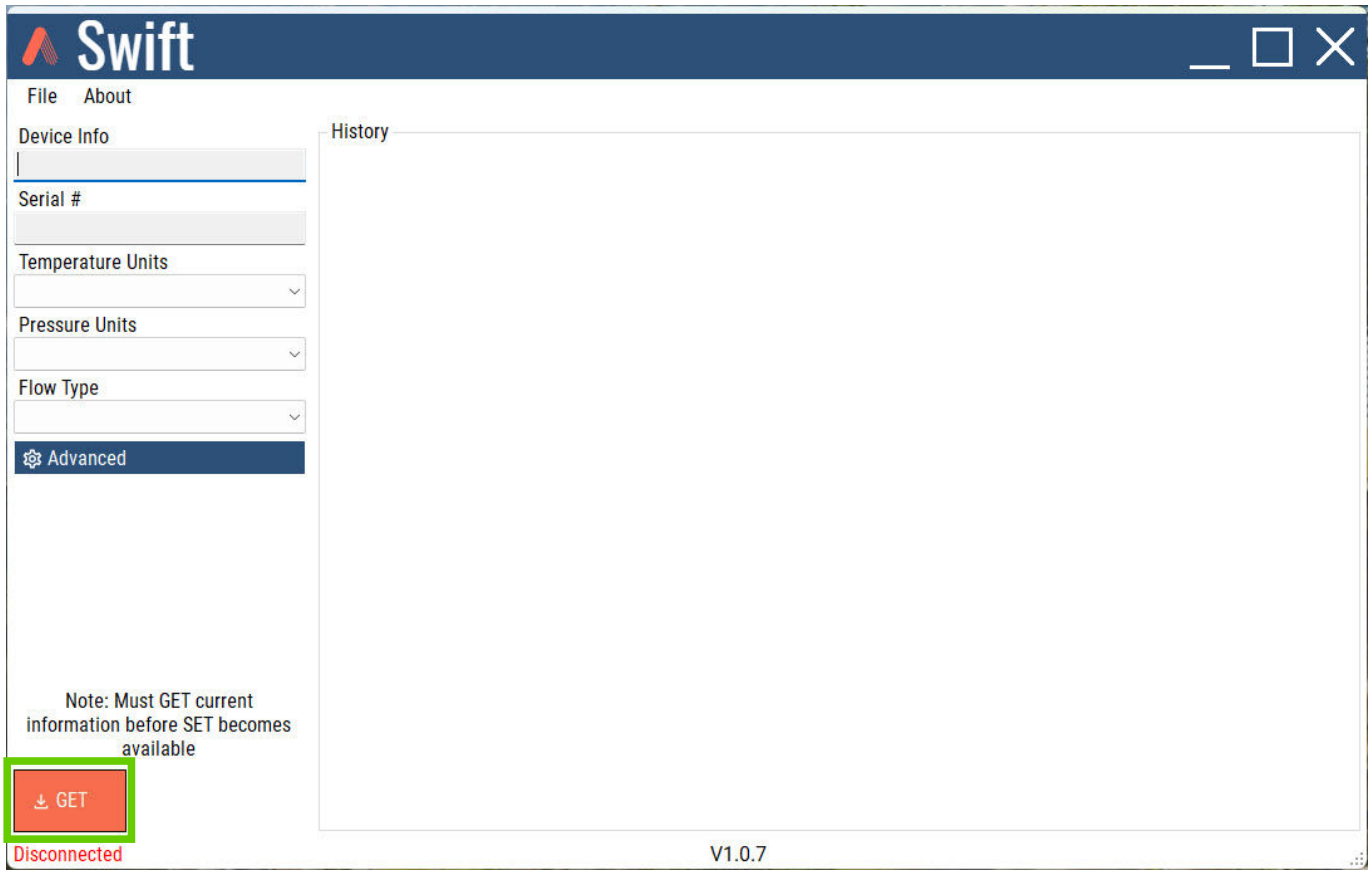


Figure 7-3 Start Screen

8. USER INTERFACE

The Swift 25.0 features setup software to change the temperature and pressure units, download snapshot data, and zero/tare the flow sensor. The Swift Setup Software can be downloaded from our website at https://metone.com/software/.

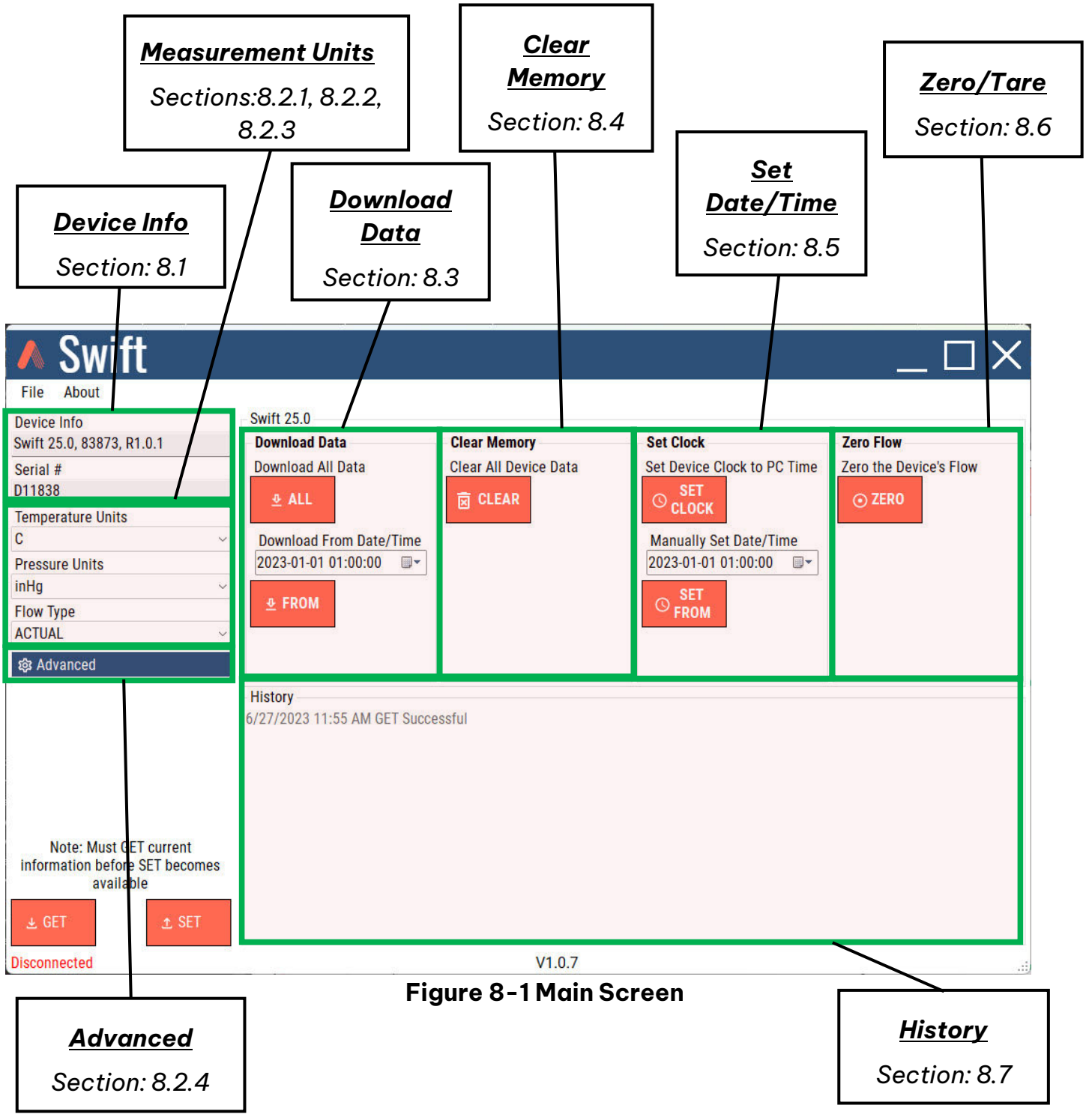


Figure 8-1 Main Screen

8.1 Device Info and Settings

- The Swift Utility software provides the device information including the model number, software version, serial number, and options for measurement units and current comport connection.
- A list of units is available in the dropdown menu for each measurement. The units of measurement can be configured to user preferences.

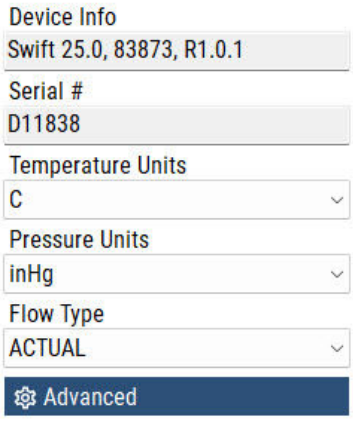


Figure 8-2 Device and Settings

8.1.1 Get Button

As was explained in section 7.2, the GET button will establish a connection to the Swift 25.0. When the button is selected, device info, serial number and units of measurement will populate in the information fields. This is confirmation that the instrument is linked to the software. Changes can now be made, and data downloaded.

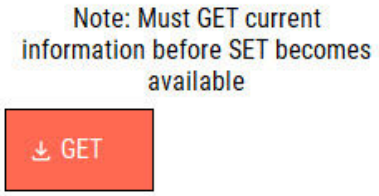


Figure 8-3 Get Button

8.1.2 Set Button

The set button will appear after the Swift 25.0 is linked with the utility software. When settings are changed, click on the SET button to send those changes to the unit. The changes will be seen on the devices' display.

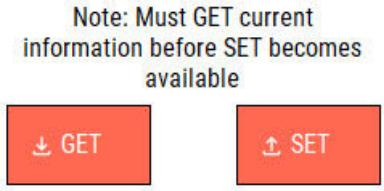


Figure 8-4 Get and Set Buttons

8.2 User settings

Changing user settings is an easy process. Simply click on the unit drop-down menu to view the available options. Click on the desired option to set the unit of measurement.

8.2.1 Temperature Units

Temperature unit options are C (Celsius) or F (Fahrenheit) illustrated by **Figure 8-5**.

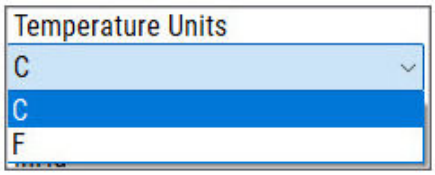


Figure 8-5 Temperature Units

8.2.2 Pressure Units

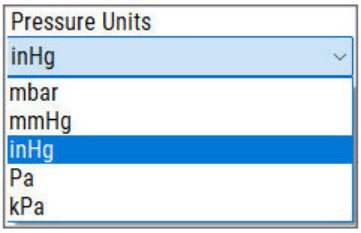


Figure 8-6 Pressure Units

Pressure unit options are mbar (Millibar), mmHg (millimeters of mercury), inHg (Inches of Mercury), Pa (Pascal), kPa (Kilopascals) illustrated by Figure 8-6

8.2.3 Flow Units

Flow Type options are Actual (LPM) and Mass (SLPM) illustrated by Figure 8-7

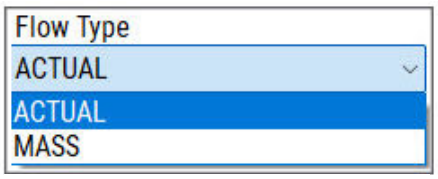


Figure 8-7 Flow Units

8.2.4 Advanced

Figure 8-8 Advanced

The advanced option is for customers utilizing many comports The advanced settings panel is hidden by default. When hidden, the software will automatically begin to scan all comports searching for a SWIFT device.

To show the advanced settings, press the “Advanced” button to enable. When enabled, the software will use the selected COM port to communicate to the current device connected. When disabled, the software will search all available COM ports for a Swift device. This advanced option was added for customers using many COM ports and just want to specify the port instead of waiting for the software to find the device.

8.3 Download Data

- The Swift 25.0 has the capability of capturing and saving data as stated in (add section link xxx). The Swift Utility software facilitates downloading saved data in three ways: “NEW”, ALL, and FROM.
- When data has been downloaded, the information will be saved in a basic text format. The text can be copied into an Excel spread sheet for easier viewing.

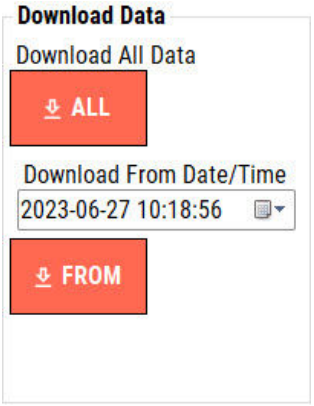


Figure 8-9 Download Data Options

An example of raw data is illustrated below.

Time,Flow(LPM),AT(C),BP(mbar),RH(%)

2023-06-22 09:17:04,00.02,+23.16,1013.8,043,000

2023-06-22 09:17:11,00.00,+23.18,1013.8,044,000

2023-06-22 09:17:24,00.17,+23.27,1013.8,046,000

2023-06-22 09:17:32,03.70,+23.34,1013.8,045,000

8.3.1 All Button

Clicking the “All” button will download all data including every data point stored within the Swift 25.0 memory.

8.3.2 From Button

The From function allows the user to download data from a specified date and time to present. For example, if there was data stored from November 1st to December 10th and the last ten days of data are required. The “FROM” date would be selected for 2023-12-01. The downloaded data will be from December 1st to present.

8.4 Clear Memory

- Pressing the "CLEAR" button will clear all the data in the current Swift 25.0 device.
- A prompt will appear asking the user if they are sure they want to clear all the current data in the device. Pressing Yes will delete all data in the current Swift 25.0 device. Pressing No will cancel this action and return the user back to the main screen.

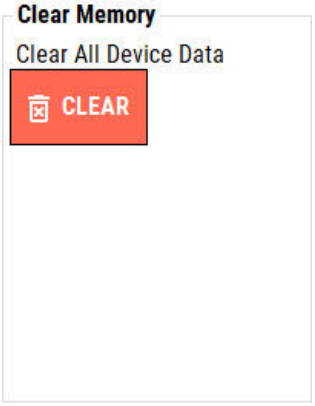


Figure 8-10 Clear Memory

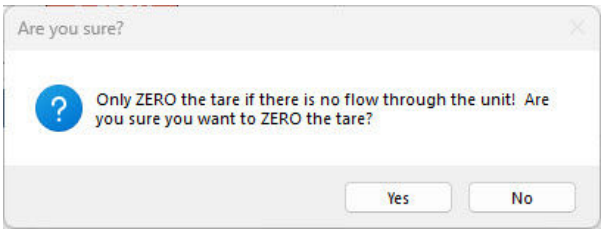


Figure 8-11 Clear Memory Prompt

8.5 Date and Time

The SWIFT Utility software provides two options for setting the device's date and time, "SET CLOCK" and "SET FROM". The date and time are used to identify when data was captured by the end user.

8.5.1 Set Clock

"SET CLOCK" allows the user to configure the date and time of the flow meter using the computer's current date and time.

Pressing the "SET CLOCK" button will open a prompt to confirm if the Swift 25.0 device's clock should be set to the current PC time. Pressing Yes will set the clock. Pressing No will cancel this action and return the user to the main screen.

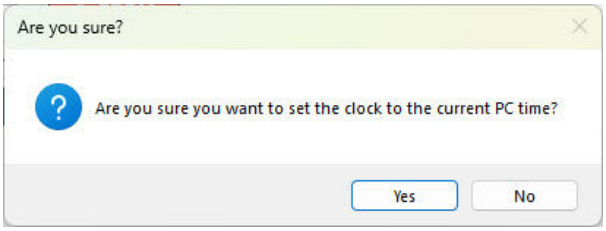


Figure 8-12 PC Time Prompt

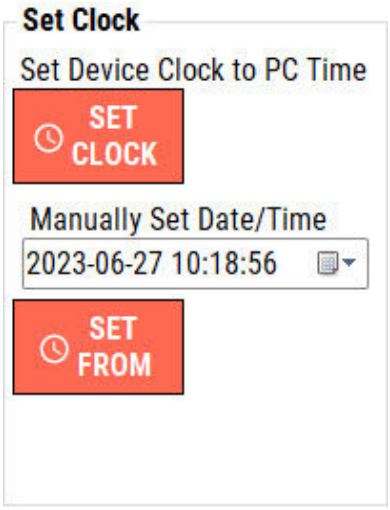


Figure 8-13 Date and Time Settings

8.5.2 Set From

"SET FROM" allows the user to configure the date and time of the flow meter by selecting the desired date and time.

- To edit the date, click on the small calendar icon drop down menu to select the desired date.
- To edit the time, click on hours, minutes, or seconds fields to highlight them. When the numbers are highlighted, use the keyboard numbers to type in the desired values. hours, minutes, and seconds need to be edited individually.
- Click on the "SET FROM" button to save the changes. A prompt will appear, confirming if the date and time should be set to the current selection. Pressing Yes will apply the chosen date and time. Pressing No will cancel this action and return the user to the main screen.

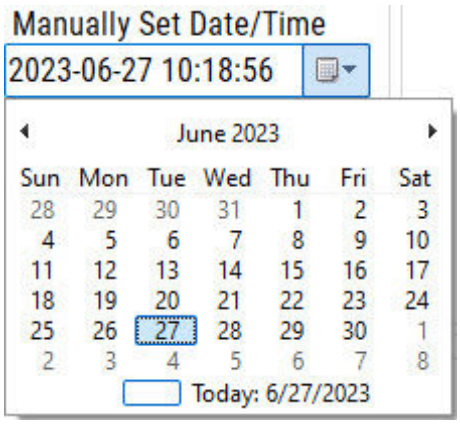


Figure 8-14 Date Dropdown Menu

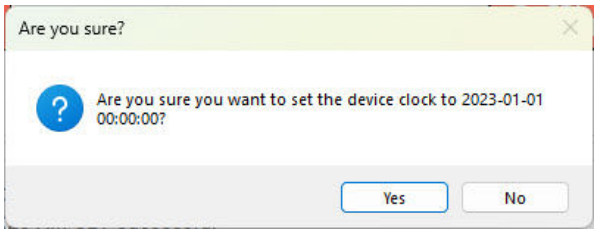


Figure 8-15 Select Time Prompt

8.6 Zero Flow

The "ZERO" button will perform a zero-flow reset of the internal flow sensor. Be sure that the flow meter is not mounted to a running particle monitor and that no flow is passing though the inlet. If there is air flowing though the inlet, the zero tare will create an offset, adversely affecting the accuracy of the device.

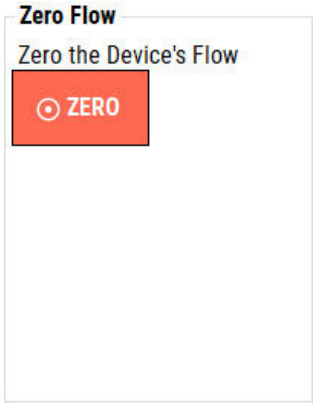


Figure 8-16 Zero Flow

- Click on the "ZERO" button to zero the flow, resetting the internal flow sensor offset.
- A prompt will appear, confirming that no flow is passing though the unit and that a zero tare should be performed. Pressing Yes will apply the chosen date and time. Pressing No will cancel this action and return the user to the main screen.

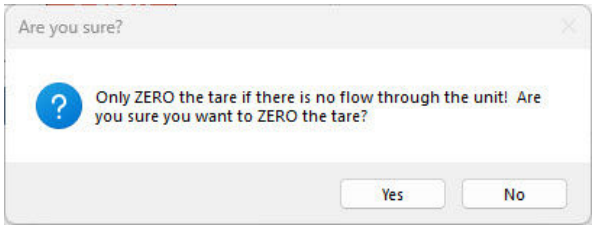


Figure 8-17 Zero Tare Prompt

8.7 History

The history panel tracks all actions made in the software. This panel will show if an action was successful or unsuccessful.

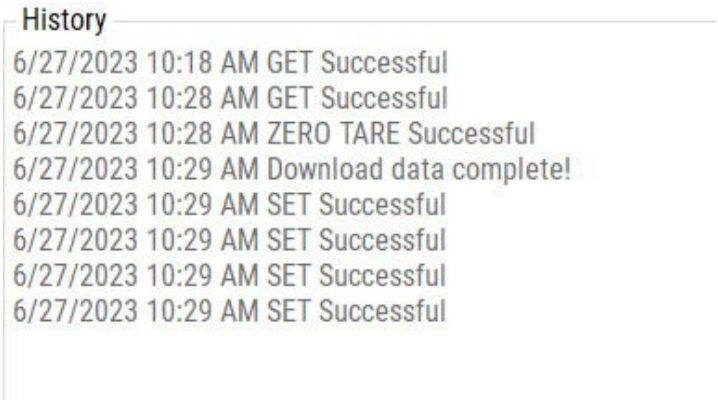


Figure 8-18 History Panel

9. SWIFT BLUETOOTH APPLICATION

See the Swift Bluetooth application manual for more information.

10. FLOW AUDIT SHEET

This section (next page) contains an example Audit Sheet for a Met One Instruments BAM 1020. Refer to the owner's manual of the specific instrument when performing an audit.

BAM 1020 Audit Sheet

Model:	**BAM 1020**	**Serial Number:**	
Audit Date:		**Audited By:**	

Flow Audits			
Flow Reference Standard Used:	Model:	Serial No:	Calibration Date:
Temperature Standard Used:	Model:	Serial No:	Calibration Date:
Barometric Pressure Standard Used:	Model:	Serial No:	Calibration Date:

Leak Check Value: as found: lpm as left: lpm

		BAM	Ref. Std.		BAM	Ref. Std.		
Ambient Temperature:	as found:	C	C	as left:	C	C	N/A	
Barometric Pressure:	as found:	mmHg	mmHg	as left:	mmHg	mmHg	N/A	
Flow Rate (Actual Volumetric):	as found:	lpm	lpm	as left:	lpm	lpm	N/A	
Flow Rate (EPA Standard):	as found:	slpm	slpm	as left:	slpm	slpm	N/A	

Mechanical Audits

Pump muffler unclogged:	as found		as left		PM10 particle trap clean:	as found		as left		N/A	
Sample nozzle clean:	as found		as left		PM10 drip jar empty:	as found		as left		N/A	
Tape support vane clean:	as found		as left		PM10 bug screen clear:	as found		as left		N/A	
Capstan shaft clean:	as found		as left		PM2.5 particle trap clean:	as found		as left		N/A	
Rubber pinch rollers clean:	as found		as left		Inlet tube water-tight seal OK:	as found		as left			
Chassis ground wire installed:	as found		as left		Inlet tube perpendicular to BAM:	as found		as left			

Analog Voltage Output Audit		N/A	
	Set Out	**Measured**	
1.000 Volts	Volts	Volts	
2.500 Volts	Volts	Volts	
5.000 Volts	Volts	Volts	

Membrane Audit	
Zero Count (I1)	
Span Count (I2)	
Measured Mass	
Percent Error	

Flow Control Range	
Flow Set Point	**BAM Flow**
15.0 LPM	
16.70 LPM	
18.3 LPM	

Setup and Calibration Values								
Parameter	**Expected**	**Found**	**Parameter**	**Expected**	**Found**	**Parameter**	**Expected**	**Found**
Clock Time/Date			FRH Setpoint			Conc Range Analog Output		
Inlet Type			Low Power			Conc Offset		
Conc Units			Pressure Units			Analog Range 1		
Beta Count			Time Stamp			Analog Range 2		
BAM Sample			Tape Pressure Alarm			RS-232 baud		
Cycle Mode			Conc Error Alarm			Flow Control-232		
Standard Temp			Maintenance Alarm			RS-485 baud		
Background			Station ID			Protocol Type		
Span Membrane			MET Average			Modbus Port		
Span Check						Modbus Address		
K								
Usw								

Last 6 Errors in BAM 1020 Error Log					
Error	**Date**	**Time**	**Error**	**Date**	**Time**
1			4		
2			5		
3			6		

Audit Notes: