SwemaFlow 126

Operating instructions

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Contents:

SwemaFlow 126

1. Introduction

Thank you for choosing a quality instrument from Swema.
SwemaFlow 126 measures air flow directly in l/s, m3/h or cfm
(when set to US units).

SwemaFlow 126 includes:
- Flow capture instrument
- Flow hood 300x300mm for exhaust flow (supply after calibration)
- Carrying case, USB-cable, charger, operating instructions
- Calibration certificate

Accessories:
Supply / Exhaust Flow hood 650x650 mm, h = 800 mm, Part.no: 769640
Cross for Swirl diffusers, Part no. 769650
Supply / Exhaust Flow hood 250x650 mm, h = 800 mm, Part.no: 760740
Exhaust Flow hood 300x300 mm, h = 130 mm, Part.no: 761550

2. Technical data

Measuring range:
Air Flow: 1.5... 125 l/s, 5.4... 450 m3/h, 3.2... 260 cfm
Temperature: 0...50°C, 32...122°F
Barometer: 600... 1200 hPa, 18...35 inHg

Measurement uncertainty:
Air Flow: ±3% read value, min 0,5 l/s
Temperature: ±0,5°C
Barometer: ±3,5 hPa

Back-pressure method uncertainty: ±10% min 1 l/s

At 95% coverage probability in non-condensing, non-moist air,
<80% RH, non-aggressive gases

Measuring method:
Mass flow, net of hot wires

Weight:
1,82 kg (including capture hood 300x300mm and throttle ring)

3. Function

The current flow is presented on the display two times per second. Swema Flow 126 can display Real flow, by measuring air temperature and barometric pressure, or Standard flow.

On/Off (RED button)

Turn on and off the instrument by pressing the RED button. When turning on the instrument, the display will first show firmware version and then battery voltage. It will then go into BP (Back Pressure) mode. When "Real" is displayed SwemaFlow 126 measures the flow at actual temperature and barometric pressure. To change to Standard flow "std" (the flow is recalculated to a density at 20°C and 1013 hPa) the free PC-program SwemaTerminal 3 is used. The program can be downloaded at www.swema.com.

Turn on the display light by pressing the RED button while the BLUE button is held down. The istrument is shot off automatically after ten minutes if no button is pressed.

Unit (BLUE button)

By pressing the BLUE button, the display toggles between l/s, m3/h, air temperature (°C) and barometric pressure (hPa). When set to US units it toggles between cfm, air temperature (°F) and barometric pressure (inHg).

Mode (GREY button)

Toggle between Back Pressure mode, Flow Factor mode and stored values (notE).
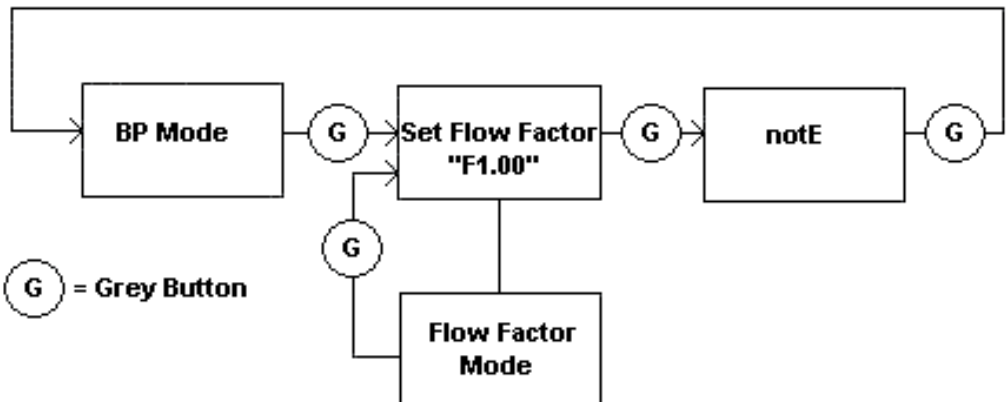
Flow hood selection

For supply flow, use a longer hood (650x650mm or 250x650mm) to stabilize the flow.
The included 300x300 hood can be used for supply air if it gives the same result on the valve type as one of the longer hoods.
All hoods to SwemaFlow 126 can be used for exhaust flow measurements.

BP Mode (Back Pressure)

When measuring with any Flow capture the flow may be influenced by the Flow capture itself. The flow may be throttled. This can be corrected by using the Back Pressure mode. By measuring two times, with and without an extra throttle ring, SwemaFlow 126 calculates the flow that reflects the true flow with no capture interference. It doesn't matter if you start to measure with or without the throttle ring, the important thing is that one measurement is with the throttle ring and the other one without. It's important where the throttle ring is placed, when measuring with the throttle ring it should always be placed after the hot wires in the sense of flow direction.

Exhaust air

Supply Air

Throttle ring
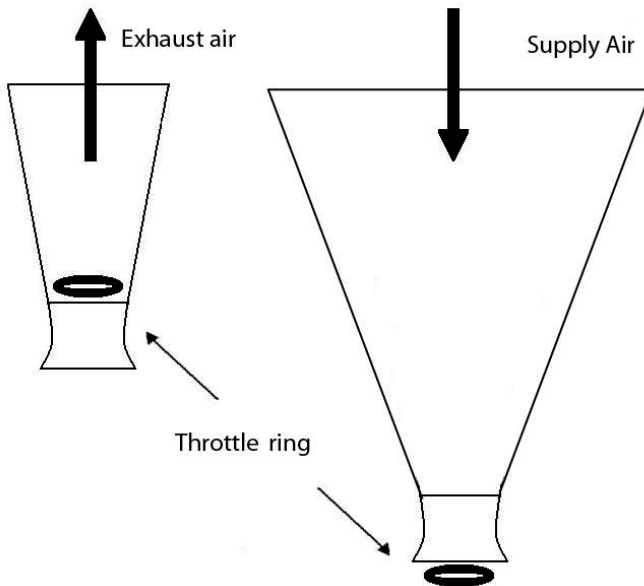
SwemaFlow 126

BP Measurement (BLACK button)
Place the hood with the sealing making a proper seal around the valve. Start with or without the throttle ring and press BLACK button (button on the side). SwemaFlow 126 will wait 2 seconds to let the flow stabilize in the flow capture, the display will show "P1" (Point 1) and start to count up from 0 to 2 (the stabilization time). It will after that make a measurement for 5 seconds during which the display will show the measured value. When finished, "P2" (Point 2) will be shown in the display. Point 2 need to be measured within 1 minute, otherwise SwemaFlow 126 will return to Point 1. Remove or put on the throttle ring and press BLACK button again, SwemaFlow 126 will repeat the same procedure as for P1. When finished the display will show the True value without any influence by the flow capture. If the value is flashing it means that something has gone wrong and the value might not be correct, and if so, make a new measurement. By pressing GREY button, the lowest measurement of the two points, with throttle ring, is displayed for 2 seconds before it returns to the true value again. By pressing BLUE button, the higher of the two points will be displayed for 2 seconds.

Save measurement (BLACK button long press)
When P1 and P2 is measured the measurement can be saved by holding down the BLACK button for 2 seconds. The display will show which note number the measurement is saved as and then return to measuring mode.
If you don't want to save the measurement just press short on BLACK button and you will return to measurement mode without saving.

4.

Flow Factor Measurement (F-mode)

In Flow Factor mode the flow is multiplied with a flow factor (flow factor 1.00 will not alter the flow). A flow factor can be used to compensate for example a leakage. Warning: Changing to anything else than 1.00 will alter the reading from calibration certificate. The display will show the text "Factor" when the instrument is in F-mode. While in BP Mode change to F-mode by pressing the GREY button. (BP-mode does not use a Flow factor) The instrument will change to F-mode and display F1.00 or the value of flow factor that the instrument used last time in F-mode after being turned on. For example F1.10 will multiply measured flow with 1.10 and display the result.

Take a measurement with a Flow Factor

To measure with the flow factor displayed next to F press BLACK button for less than 2 seconds. To change the flow factor, hold down BLACK button for minimum 2 seconds when F1.00 is shown. The first digit will start flashing. Change value by pressing GREY or BLUE button. When correct value is chosen, confirm by short press of BLACK button and the second digit will start flashing. Repeat the same procedure with the second and third digit. After the third digit is confirmed the instrument will start measuring in F-mode. The measurement can be stored in the same way as in BP-mode. To return to BP Mode, press GREY button 3 times (First press will show FX.XX, second will show notE and the third will take you to BP mode).

HOLD function (BLACK button)

If BLACK button is pressed down shortly the display will freeze the measured value. "Hold" is shown in the upper left corner of the display. Press BLUE button to toggle between the frozen values of air flow, temperature and barometric pressure.
Release the frozen values by pressing down BLACK button for less than 2 seconds.

Save measurement (BLACK button long press)

If a measurement is frozen it can be saved by holding down BLACK button for 2 seconds. The display will show which note number the measurement is saved as in the note book and then return to measuring mode.

SwemaFlow 126

Note book (notE)

If, in BP Mode, GREY button is pressed two times "notE" will be displayed. To enter the note book, press BLACK button. "Note" and the number of the last saved note will be shown on the display. With GREY and BLUE button it's possible to scroll through the saved notes. To return to "notE" press RED button.

To read saved measurements in a note, press BLACK button. With GREY and BLUE button it's possible to scroll through the saved measurements in the note (air flow, temperature and barometric pressure). To return to notes press the RED button. To erase the note memory hold down the BLACK button for 2 seconds, "E ALL" (Erase All?) will be shown in the display. To erase the note memory, hold down the BLACK button for 2 seconds, "E ALL" (Erase All?) will be shown in the display. After all notes are erased "notE" will be shown in the display, press GREY button to go to BP Mode. Use the free PC-program SwemaTerminal 3 to transfer saved data to PC.
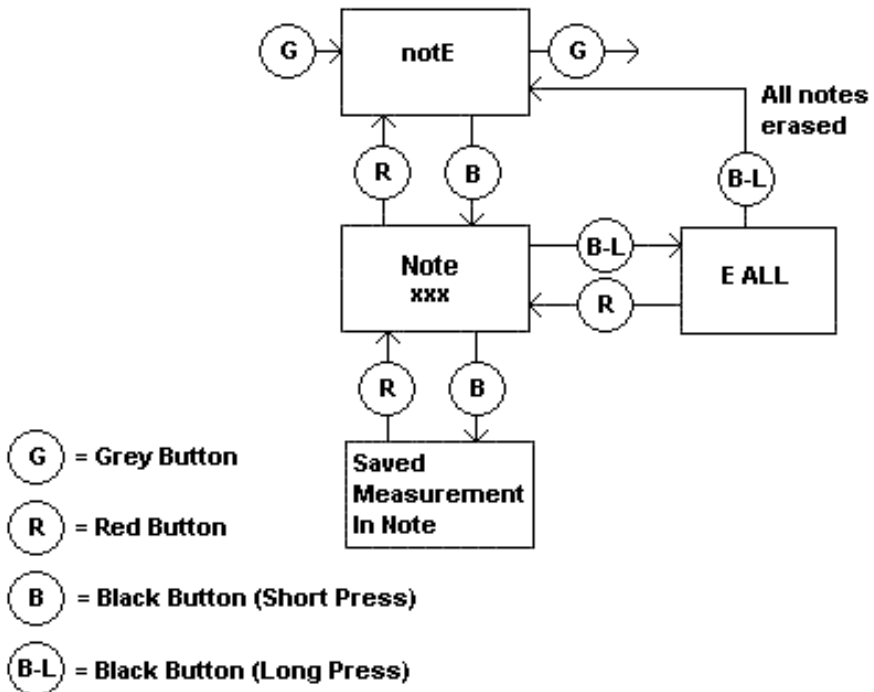
SwemaFlow 126

4. Charging

SwemaFlow 126 has built-in rechargeable Li-ion-batteries. Battery charging time is approximatley 2 hours (reaches 80% in 1 hour). The charger can be connected to the instrument longer without damaging the battery. The battery can also be charged with a USB cable connected to a computer. The green LED will have a fixed light during charging, when fully charged the green LED will be turned off. It is recommended not to use the instrument while charging. Therefor the display is blinking as a warning during charging. Caution! Use only the original charger, other chargers might damage the batteries.

Battery level

When the instrument is turned on, the display shows the battery voltage level. With fully charged battery it will show 4.1 V, but will soon go down to 3.8-3.9 V. When the voltage is lower than 3.1 V a battery symbol is shown on the display. When the voltage is lower than 2.8 V the instrument will automatically shut off.

5. Driver installation

To use SwemaFlow 126 with a Windows 10 PC, just connect the USB cable and wait for the driver installation to complete. To use Swema-Flow 126 with an earlier OS driver matching .inf-files must be used by the OS. The necessary files and drivers are automatically installed with the free software ”SwemaTerminal 3”.

1. Download ”SwemaTerminal 3” zip-file from www.swema.com.

2. Unzip the file and run the setup file. When the setup is done connect the USB cable to the PC and turn on the instrument. The PC will now install the necessary drivers automatically.

In case the driver installation doesn't succeed you can also do it manually. Open the device manager, right click on ”unknown device” and then ”update driver”. The drivers can be found in ”C:/Program Files/Swema” (make sure that the box ”include sub folders” is checked).

6. SwemaTerminal 3
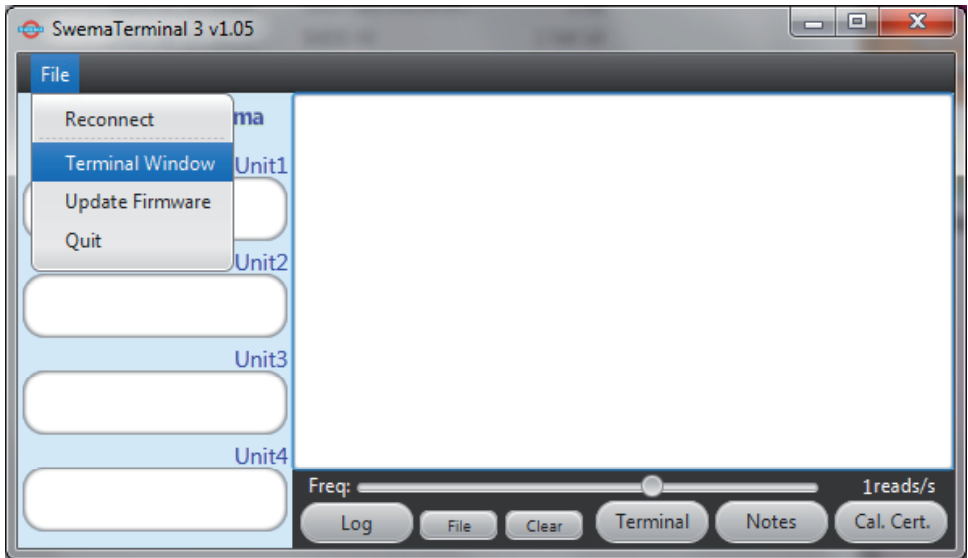
With SwemaTerminal 3 it's possible change settings, print stored measurements, update firmware, print calibration protocol. Information of what kind of instrument and at which COM-port it's connected can be found on the top left side. For SwemaFlow 126 it is only possible to change settings in "Terminal Window".

Firmware update
On www.swema.com the newest firmware version will be possible to download. To update the firmware first download the new firmware to your PC. Start SwemaTerminal 3 with the SwemaFlow 126 connected to a USB port with the USB cable. In SwemaTerminal 3 click on "File" and then "Update firmware". A new window is opened, follow the instructions in that window.

Terminal Window
Under the "File" dropdown menu it's possible to open a Terminal window through SwemaTerminal 3 to access the instrument PC menu. There is access to change for example Averaging time, automatic shut off time and the possibility to erase saved data (Erase Notebook).

7. PC-menu in instrument

After "Terminal Window" is clicked a new window is opened. Press "Enter" on the keyboard and the main terminal menu for Swema-Flow 126 will be opened. To change a setting use the PC keyboard and press on the corresponding letter.

SwemaFlow 126 Firmware: 1.02 Hardware: 0.9

[T] Averaging Time: 0.2 seconds responsive
[D] Density compensation: Real Flow
[S] Auto Shutoff: 10 minutes
[P] Print Calibration Certificate
[N] Print Notebook
[E] Erase Notebook
[O] Delimiter: Comma
[U] Unit System: US
[H] Charging: On
[ ] Space - Print Measurement Values

"Averaging time":
A higher "Averaging time" will use more internal samples for the averaging and give a more stable value.

"Real" or "Standard flow":
If set to "Real" the flow shows as it is at present temperature and barometric pressure. Standard flow is used to present the air flow at standard conditions of 1013 hPa (29,9 inHg) and 20°C (68°F).

"Auto Shutoff":
Set in minutes after how long time the instrument will be turned off if not used. If set to 0 min the auto shutoff is disabled.

"Print calibration certificate" and "Print Notebook":
Show SwemaFlow 126's calibration certificate and print the stored measurements to the PC.

"Point" or "Comma":
Set point or comma as decimal separator for the print-out of stored values and for logged measurement to PC.

"US" or "EU/ASIA":
Set unit system to US (ft3/min, °F, inHg) or EU/ASIA (l/s, °C, hPa).

"Charging On /Off"
NOTE! When transferring measurements values (with space), charging should be set to Off because the measurement values can be influenced by the charging.

"Space"
Sends current measurement values to PC.

All notes erased

E ALL

B-L

notE

Note xxx

Saved Measurement In Note

B

B

R

R

G

B-L

R

B-L

Set Flow Factor "F1.00"

Change FF Value

Flow Factor Measuring Mode

Hold Function

Store Measurement

B-L

B

B

B-L

G

B

G

BP Mode

P1 Measured Waiting For P2

True Value Displayed

Store Measurement

B

B

B-L

B

G

Turn On

Turn On With Display Light

R

R + Blu

G = Grey Button
R = Red Button
Blu = Blue Button
B = Black Button (Short Press)
B-L = Black Button (Long Press)

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