



Datasheet

DIFF Automatic Air Volume Flow Meter

The Observator DIFF Automatic is a unique air volume flow meter, whose operation is based on the zero method. With this method the resistance of the measuring instrument itself is compensated. This is why it is measuring accurately because the characteristic of the air distribution system is not influenced. You can use it for measurements of supply and extract air volume flow at grilles, diffusers etc.

The DIFF can be used for example for checking and to adjust ventilation systems housing and utility. So it will avoid sick-building syndrome.

It is ideally suited for commissioning specialists, facilities managers, health and safety specialists, test engineers and ventilation installers.

Features

- Full automatic, quick and accurate pressure measurement
- The characteristic of the air distribution system is not influenced by the measurements
- Easy digital read-out by the possibility of different measuring positions
- Indication of flow direction and air temperature
- Data logging by SD-card and use with pc-software DIFFiner
- Ergonomic design and light weight for easy one person operation
- Measuring in accordance with worldwide standards
- Energy, time and so costs saving
- Divergent applications

Specifications

- Measuring range: 10-400 m³/h, 2,78-111 l/s, 5,89-235 CFM and -15 to +70°C, 5-158°F
- Working conditions: -10 to +50°C, 0-95% RV, (not condensating)
- Resolution display: 0,1 <100>1 m³/h, 0,1 °C
- Resolution zero pressure meter: < 0,2 Pa
- Accuracy: ±3% of reading ±1 m³/h, ± 0,5°C
- Power supply: 4x 1,2 V AA-size 2700 mAh NiMH battery
- Battery life: 8 hours fan in continuous operation at 75 m³/h
- Auto Power Off: low battery or after 10 minutes at no use
- Dimensions: 25x51xØ20cm
- Weight: 3 kg incl. batteries

Options

- Fabric Hood (Nylon) incl. aluminium frame and fibre rods 400x400, 600x600mm, 310x1234 or 310x1534mm
- Extra rechargeable battery set
- Adapter charger EU-UK 3pin
- Plastic transparent Hood 325x325x(h)220mm*
- Upgrade datalogging incl. 2GB SD-card and pc-software DIFFiner software*

General description

This electronic portable instrument is special designed for accurate measurement of air volume flows of grilles, diffusers etc. Measurements are done by the ZEROMETHOD. This principle of measurement is written in many International Standards.

The pressure that is build-up by the instrument itself, because of the internal resistance, is by this zero method automatic compensated against the atmospheric pressure outside the instrument.

The pressure compensation is done by a build-in, special designed, fan which is controlled by a differential pressure sensor.

The indication is controlled by a sensor which is measuring the speed of the fan and is converted by the electronics in read-out in m³/h (also possibility to read-out in cfm or l/s). After 3-20 seconds (depending on the actual pressure) the digital instrument is indicating the volume flow which for example is been blow-in or exhausted by a grill.

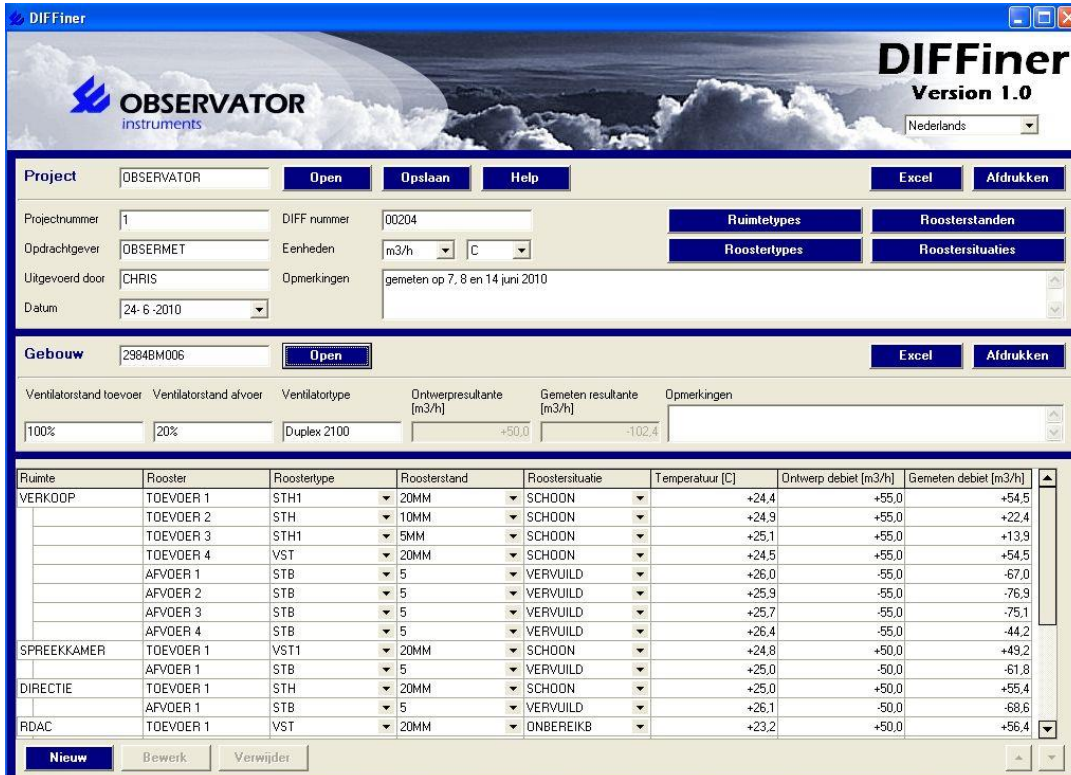
The zero point is always maintained by the DIFF Automatic, which is essential by measurements of fluctuating flows. The meter is also recognizing the flow direction and is indicating this on the display.

Measurements can be done on most measures of blow and exhaust ornaments. It is possible to measure big grilles in parts because the DIFF is not disturbing the blowin or exhaust air model of the grill. The sum of the measurement is the flow through the grill.

The optional hoods are produced of strong nylon and aluminium frames and can be mounted with fiber rods. With these hoods it is also possible to measure big grills for example as used in the utility.

*It is standard delivered with data logging by SD-memory card, pc-software DIFFiner for measuring reports, calibration certificate, manual, four rechargeable batteries, charger (power supply 100-240VAC50Hz/12VDC-1.5A car use), plastic Hood 325x325x220(h) mm and a carrying case.





Ruimte	Rooster	Roostertype	Roosterstand	Roostersituatie	Temperatuur [C]	Ontwerp debiet [m3/h]	Gemeten debiet [m3/h]
VERKOOPT	TOEVOER 1	STH1	20MM	SCHOON	+24.4	+55.0	+54.5
	TOEVOER 2	STH	10MM	SCHOON	+24.9	+55.0	+22.4
	TOEVOER 3	STH1	5MM	SCHOON	+25.1	+55.0	+13.9
	TOEVOER 4	VST	20MM	SCHOON	+24.5	+55.0	+54.5
AFVOER 1	AFVOER 1	STB	5	VERVUILD	+26.0	-55.0	-67.0
	AFVOER 2	STB	5	VERVUILD	+25.9	-55.0	-76.9
	AFVOER 3	STB	5	VERVUILD	+25.7	-55.0	-75.1
	AFVOER 4	STB	5	VERVUILD	+26.4	-55.0	-44.2
SPREEKKAMER	TOEVOER 1	VST1	20MM	SCHOON	+24.8	+50.0	+49.2
	AFVOER 1	STB	5	VERVUILD	+25.0	-50.0	-61.8
DIRECTIE	TOEVOER 1	STH	20MM	SCHOON	+25.0	+50.0	+55.4
	AFVOER 1	STB	5	VERVUILD	+26.1	-50.0	-68.6
RDAC	TOEVOER 1	VST	20MM	ONBEREIKB	+23.2	+50.0	+56.4

DIFFiner PC software

DIFFiner is PC software designed for use with the DIFF Automatic air volume flow meter. Together they provide a simple and very accurate solution for surveying and reporting of ventilation systems in residential and commercial buildings.

Observator Instruments are the first manufacturer to offer this unique solution. Together with the DIFF, the PC-software DIFFiner is supplied complete with a 2 GB SD card. The SD card serves as the memory card for the Diff Automatic.

The DIFF Automatic with pressure compensation can be used for calibrating, adjusting and the accurate balancing of air supply rates and exhaust rates at grilles in housing and utilities (e.g. heat recovery systems). Remember it is the technique of balancing pressure across the Diff Automatic that ensures high levels of accuracy. Applications for this technology and instrumentation are far reaching.

Features

- Easy to use
- Fast and accurate measurement
- Quick and efficient
- High efficiency reduces on site costs
- Readings sent to internal data base which can be downloaded to PC
- Data convertible to Excel
- Ideal for measuring and commissioning heat recovery systems
- Compatible with Windows XP, Windows Vista, Windows 7 and Windows 8



MEASUREMENT REPORT DIFF

Project	DEMO	Project number	12345
Client	OBSERVATOR	DIFF number	Diff-00702
Executed by	Ben	Date	2-4-2019
Remarks	n.a.		

Building	Building 1	Fan type	1
Fan position supply	3	Fan position exhaust	3
Design result [m3/h]	+53,7	Measured result [m3/h]	+28,0
Design supply [m3/h]	+329,7	Measured supply [m3/h]	+312,1
Design exhaust [m3/h]	-276,1	Measured exhaust [m3/h]	+284,1
Remarks	none		

Room	Grille	Grille type	Grille position	Grille situation	Temperature [°C]	Design flow [m3/h]	Measured flow [m3/h]
BEDROOM1	Supply1	1	2 mm	GOOD	21,1	+50,0	50,7
	Exhaust1	1	2mm	DIRTY	21,1	-70,0	-68,5
BATHROOM	Supply1	1	2mm	GOOD	20,2	+55,0	53,7
	Exhaust1	1	2 mm	DIRTY	20,2	-65,0	-60,4
TOILET 1	Supply1	1	2mm	GOOD	20,6	+47,0	+50,3
	Exhaust1	1	5mm	DIRTY	20,6	-60,0	-59,8
STUDY	Supply1	1	2mm	GOOD	21,3	+35,0	+33,8
	Exhaust1	1	5mm	GOOD	21,3	-55,0	-56,0
BEDROOM2	Supply1	1	2mm	GOOD	21,4	+35,0	+33,8
	Supply2	1	2 mm	GOOD	21,1	+47,0	+50,3
	Exhaust1	1	2mm	GOOD	21,1	-65,0	-60,4
BEDROOM3	Supply1	1	2mm	GOOD	20,2	+55,0	53,7
	Exhaust1	1	2mm	GOOD	20,2	-65,0	-60,4
	Supply1	1	2mm	GOOD	20,6	+50,0	50,7
TOILET 2	Exhaust1	1	2mm	GOOD	20,6	+47,0	+50,3
	Exhaust2	1	5mm	DIRTY	20,6	-60,0	-59,8
	Supply1	1	2mm	GOOD	21,3	+35,0	+33,8
PANTRY	Exhaust1	1	5mm	GOOD	21,3	-55,0	-56,0
	Supply1	1	2mm	GOOD	21,4	+35,0	+33,8
LIVING	Supply2	1	2 mm	GOOD	21,1	+47,0	+50,3
	Exhaust1	1	2mm	GOOD	21,1	-65,0	-60,4
	Supply1	1	2mm	GOOD	20,2	+55,0	53,7
KITCHEN	Supply2	1	5mm	GOOD	20,6	+47,0	+50,3
	Exhaust1	1	2mm	GOOD	21,3	-55,0	-56,0
	Exhaust2	1	2mm	GOOD	21,3	-65,0	-60,4
	Supply1	1	2mm	GOOD	21,3	-65,0	-60,4

How does it work?

A data base is created using the DIFF PC software and copied onto the SD card for use with the Diff Automatic. This measurement reporting facility can be found in the menu of your DIFF under [STORAGE].

1. Insert the SD card into your PC and start DIFFiner. Select the SD card. Then create the project name. Enter as much known data as required. Create a database of fan speed, room types, grill type, grill positions and external influences.
2. Then fill in house or building design data, such as the design airflows. Using the button [NEW] at the bottom of the screen designate the zone/area being tested or select a zone/area from a previously created database. Design data can be created from another similar file. This has created the Project.
3. When ready insert the SD card in the DIFF Automatic(side of the display). Select [STORAGE] and select the [PROJECT] and the desired house or desired [BUILDING] (address, zip code + house number or name).
4. Now select the position of the Fans of the ventilation unit and then select the room to be measured.
5. Then choose the inlet or outlet grill to be measured.
6. The design flow and the measured values are shown. At this point the position and type of the grill can still be changed within the data base.



7. Measurements can be repeated if desired. When ready measurement results are saved by pressing the [ENTER] key.

8. The data base can be viewed. The following are displayed:

- a) Measured and design total flow rates.
 - b) Resultant balance of pressure through the Diff Automatic. This resultant should always be zero. Remember: the Diff Automatic self-adjusts to ensure a zero pressure drop through the instrument. Over or under pressure drops through Diff automatic are displayed.
9. When measurements are finished, take the SD card from the DIFF Automatic and place it in the PC. Enter DIFFiner and select the desired [PROJECT].
10. Print if required.
11. Company details and logo can be added to the measurement reports.
12. Print a report in HTML format or export to Excel. Multiple reports of several houses or buildings can be created. Select the required house(s) and or building(s) to view data
13. By selecting [PROJECT], [OPEN], [EXPORT] the project (.diff file) can be stored to another location. It is also possible to [IMPORT] a .diff file. As a precaution, DIFFiner will automatically create another project name when importing this preventing corruption of existing data. "Measurement Reports" using measurements and or imported data can be created. Distribution of reports can be directed straight from the PC. Efficient, cost effective and above all accurate data readily available to all.



Welcome to the world of Observator

Since 1924 Observator has evolved to be a trend-setting developer and supplier in a wide variety of industries. Originating from the Netherlands, Observator has grown into an internationally

oriented company with a worldwide distribution network and offices in Australia, Germany, the Netherlands, Poland, Singapore and the UK.

www.observator.com