

AIRTREND Ltd
Predstavništvo u Beogradu
Kumanovska 14, 11000 Beograd
Tel: 011/3836886, 3085740
Faks: 011/3444113
e-mail: gobrid@eunet.rs
web: www.airtrend.rs

Measuring device EMSF

TECHNICAL DATA





MEASURING DEVICE EMSF

EMSF is a measuring device for the OPTIVENT system. The measuring device generates an electrical voltage which represents the actual air flow.

EMSF is designed to be used in variable air volume (VAV) systems to create a balance between the supply and extract air in a zone. EMSF measures all the supply air to a zone and sends an output signal to an extract air flow damper (e.g. EMSS).

A special offset function can be used to compensate constant air flows and control pressure levels in zones and rooms (GT).

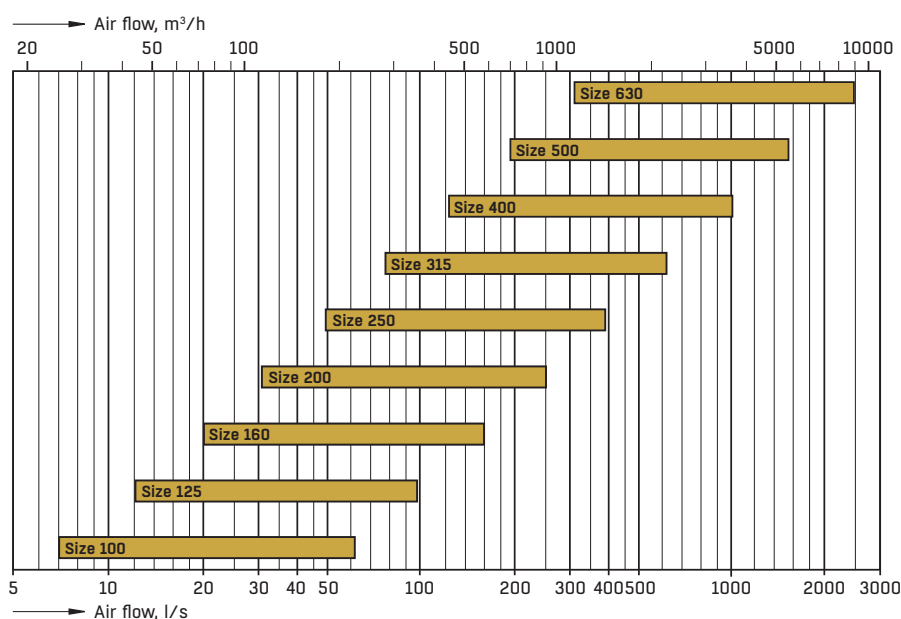
The EMSF measuring device is available in nine sizes with circular connection spigots for duct diameters from 100 to 630 mm.

All control equipment is installed on the apparatus casing.

Manual measurement of the air flow can be performed without disturbing the control circuit via a separate pressure outlet on the orifice plate of the measuring device.

All duct connections have spigot dimensions and are equipped with sealing rings made of rubber. EMSF reaches air tightness class B in accordance with EN1751:1998.

QUICK SELECTION



Recommended limits for air flow. The lowest air flows correspond to air speed of 1 m/s, which is the recommended minimum air flow to fulfil the $\pm 10\%$ measuring accuracy.

SPECIFICATIONS

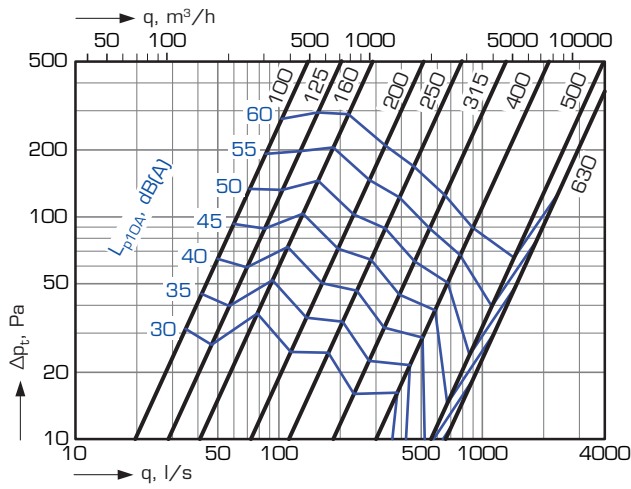
- Air flow measuring device
- Electronic control equipment (analog and Modbus)
- Integrated orifice plate measurement
- Real time air flow display
- Available in nine sizes for duct diameters 100 -630 mm

PRODUCT CODE EXAMPLE

Measuring device EMSF-1-100-1

SOUND DATA

AIR FLOW, PRESSURE DROP AND SOUND LEVEL



DUCT SOUND

EMSF	Correction of sound level K_{oct} (dB)							
	63	125	250	500	1000	2000	4000	8000
100	20	17	16	11	2	-6	-14	-19
125	17	14	13	9	2	-6	-14	-18
160	19	15	12	7	2	-4	-11	-17
200	17	11	9	6	1	-5	-14	-19
250	12	11	7	5	0	-6	-14	-19
315	13	10	5	4	2	-7	-15	-18
400	12	10	6	4	0	-6	-12	-17
500	18	16	10	4	-2	-11	-20	-25
630	13	8	9	-1	-2	-5	-6	-5
Tolerance ±	6	3	2	2	2	2	2	3

The sound power levels of the duct for every octave band are obtained by adding to the total sound pressure level L_{p10A} dB(A), the correction K_{oct} presented in the table according to the following formula:

$$L_{W_{oct}} = L_{p10A} + K_{oct}$$

Correction K_{oct} is average value in range of use of the EMSF.

SOUND TRANSMITTED THROUGH CASING

EMSF	Correction of sound level K_c (dB)							
	63	125	250	500	1000	2000	4000	8000
100	7	-7	-5	-17	-30	-36	-39	-42
125	-3	-9	-18	-21	-27	-34	-40	-42
160	-4	-11	-12	-19	-25	-28	-35	-39
200	-4	-9	-18	-24	-29	-32	-39	-39
250	-11	-11	-16	-19	-26	-30	-36	-35
315	-3	-8	-22	-15	-22	-31	-33	-43
400	-7	-14	-22	-16	-26	-25	-28	-46
500	3	-6	-18	-27	-33	-37	-41	-57
630	-2	-9	-17	-32	-31	-24	-29	-39
Tolerance ±	6	3	2	2	2	2	2	3

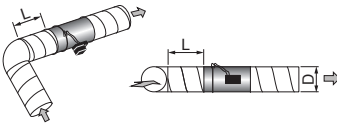
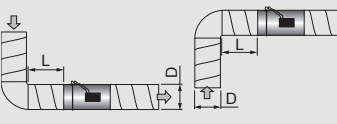
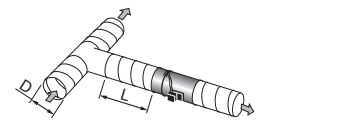
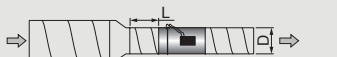
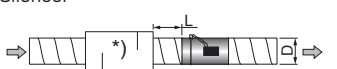
The power levels of the sound transmitted through casing of the measuring device for every octave band are obtained by adding to the total sound pressure level L_{p10A} dB(A), the correction K_c presented in the table according to the following formula:

$$L_{W_c} = L_{p10A} + K_c$$

Correction K_c is average value in range of use of the flow variator.

SAFETY DISTANCES AND NOMINAL AIR FLOW

SAFETY DISTANCES

Type of flow disturbance	Measuring accuracy	
	±12%	±15%
Bend (FG recommendation) 	≥ 2D	≥ 0D
Bend (other ways) 	≥ 4D	≥ 0D
T-piece 	≥ 2D	≥ 0D
Reducer (1:3) 	≥ 1D	≥ 0D
Silencer  *) BDER-30/40/44/60	≥ 0D	-

With other installations and when air velocity is below 1 m/s measuring accuracies in the above table cannot be guaranteed.

NOMINAL AIR FLOW AND K-FACTORS

Size	q_{nom}		k
	(l/s)	(m ³ /h)	
100	63	227	4.0
125	98	353	6.2
160	161	580	10
200	251	904	16
250	393	1415	25
315	623	2243	39
400	1010	3636	64
500	1570	5652	99
630	2490	8964	157

DIMENSIONS AND PRODUCT CODE

EMSF MEASURING DEVICE

EMSF is a measuring device for the OPTIVENT system. The measuring device generates an electrical voltage which represents the actual air flow.

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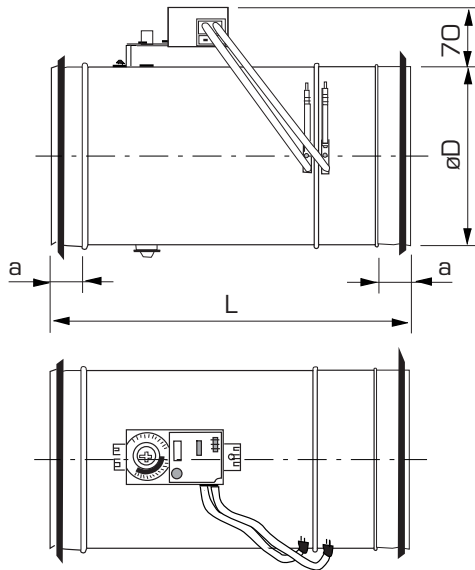
All control equipment is installed on the apparatus casing.

Manual measurement of the air flow can be performed without disturbing the control circuit via a separate pressure outlet on the orifice plate of the measuring device.

All duct connections have spigot dimensions and are equipped with sealing rings made of rubber.

EMSF reaches air tightness class B in accordance with EN1751:1998.

DIMENSIONS AND WEIGHTS



Size	øD (mm)	a (mm)	L (mm)	Weight (kg)
100	99	35	400	1.4
125	124	35	400	1.7
160	159	35	400	2.2
200	199	35	400	2.7
250	249	40	580	4.1
315	314	40	580	5.4
400	399	60	650	9.3
500	499	60	850	14.2
630	629	60	850	19.5

PRODUCT CODE

Measuring device

EMSF-a-bbb-c

Measurement unit (a)

- 1 = GT
- 2 = VRD-3
- 5 = GT-MB (Modbus)
- 6 = GT-MB-ST for IPSUM (Modbus, plug-in)

Size (bbb)

100, 125, 160, 200, 250, 315, 400, 500, 630

Material (c)

- 1 = Corrosivity class C3, galvanized sheet steel
- 2 = Corrosivity class C4, acid-proof steel (AISI 316)
(applies to parts in contact with the ventilation air)

Technical data for measurement units and installation examples; see "Measurement units GT and GT-MB" catalogue (FG_DC_9693GB).

EXCELLENCE IN SOLUTIONS

FläktGroup is the European market leader for smart and energy efficient Indoor Air and Critical Air solutions to support every application area. We offer our customers innovative technologies, high quality and outstanding performance supported by more than a century of accumulated industry experience. The widest product range in the market, and strong market presence in 65 countries worldwide, guarantee that we are always by your side, ready to deliver Excellence in Solutions.

PRODUCT FUNCTIONS BY FLÄKTGROUP

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Air Management & ATD's | Air Conditioning & Heating | Controls | Service

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