DB04A

Thermal Mass Flowmeter for Gases without Auxiliary Power

- **pressure and temperature independent measurement**
- **range: 0,001...450 Nl/min**
- **indication of flow and total consumption (totalisator integrated)**
- **compact design, no need for straight pipe runs**
- **touch display for intuitive navigation**
- **optional with valve, limit switch**
- **high accuracy +/- 1 %**
- **battery operated (AA) – no external power supply needed**

Description:

The DB04 thermal mass flowmeter is a modular system for the measurement of the flow of gases. Due to its being independent of any power supply because of its integrated battery, and its excellent cost-effectiveness, the device can replace conventional variable area flowmeters in many cases.
The DB04 can be supplied in a number of versions:
as a flowmeter with an integrated regulating valve, a totaliser or with an adjustable limit switch. Depending on the medium, the device can be made of either stainless steel or aluminium.

The convenient LCD-touch display combines a clear indication with an easy an self-explanatory programing. The device operates in any position and can be easily cleaned without the need for recalibration.

Typical applications:

The DB04A measures flow rates from 0,001...0,05 Nl/min to 9...450 Nl/min.
The standard calibration medium is air, but a large number of other gases can be measured as well: O_2, N_2, He, Ar etc. Because of the totalisator the device can be perfectly use for consumption measurement of the gases.

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Models:

DB04A.1:	Mass flowmeter, battery operated
DB04A.2:	Mass flowmeter, battery operated with integrated manual regulating valve
DB04A.3:	Mass flowmeter 24 VDC voltage supply with 3 integrated limit contacts
DB04A.4:	Mass flowmeter 24 VDC voltage supply with manual regulating valve and 3 integrated limit contacts

Technical Data:

Pressure:	0,2...11 bar abs.
Medium temperature:	0...50 °C
Media:	air, O_2, N_2, He, Ar Co_2 H_2 CH_4, C_3H_8 (others on request) all devices are delivered free from oil and grease (wetted parts)
Gas/Calibration:	up to 3 Gas/calibrations (optional)
Gas connection:	G ¼ female up to 60 Nl/min G ½ female up to 450 Nl/min
Accuracy: **(air)**	+/- 2 % of full scale, > 200 Nl/min: +/- 3 % of full scale optional: +/- 1 % of full scale (up to 50 Nl/min)
Dynamic: **(measuring range)**	1:50, optional 1:100 (up to 50 Nl/min)
Response time:	500 ms
Repeatability:	+/- 0,5 % of measured value
Power supply:	standard battery AA micro-USB supply optional: external supply 12...30 VDC (max. 200 mA) (standard at devices with limit switch) 2 m cable
Display:	touch display 128x64 px background light (not at battery operated use)
Units/scale:	free selectable
Password protection:	for menu available
Installation position:	up to 5 bar: any from 5 bar: horizontal
Limit output:	potential-free changer (24 V, 1 A)
Function:	MIN or MAX-alarm, switching point, delay, hysteresis programmable
Protection class:	IP50

Alarm contacts:

3 alarm contacts: 2 n/o: max. current: 0,5 A
max. voltage: 30 VDC
1 spdt: max. current: 1 A
max. voltage: 30 VDC
power supply: 12...30 VDC,
with reverse-pole protection

2 optical separated input chanels:
voltage range: 5...30 VDC, at 5 mA max.

Including 2 m cable connection

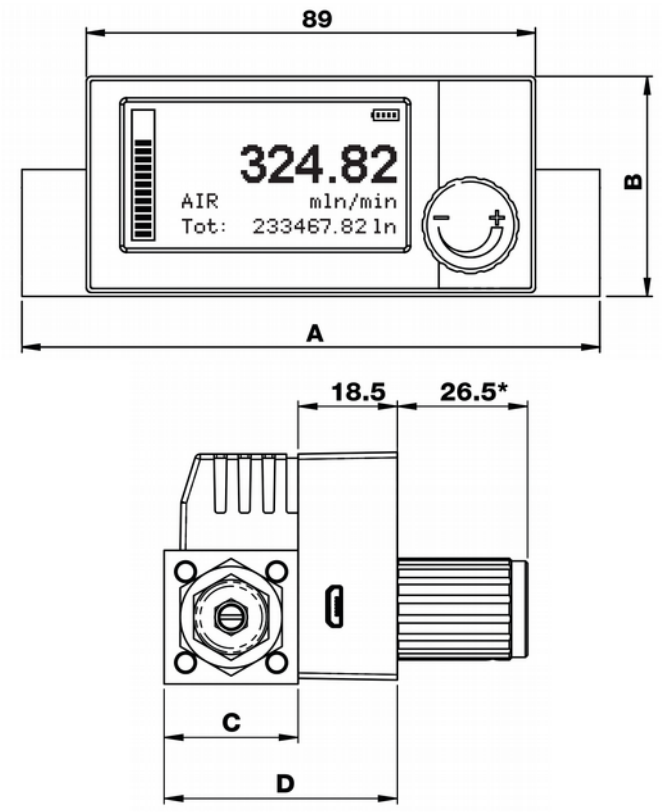
Measuring ranges for air and dimensions:

(Standard accuracy and dynamic)

Range [Nl/min]	Connec-tion [G female]	A [mm]	B [mm]	C [mm]	D [mm]
0,001...0,05	1/4	114	44	25	44
0,004…0,2	1/4	114	44	25	44
0,01…0,5	1/4	114	44	25	44
0,04…2	1/4	114	44	25	44
0,1…5	1/4	114	44	25	44
0,4…20	1/4	114	44	25	44
0,8...40	1/4	114	44	25	44
1…60	1/4	114	44	25	44
2…100	1/2	160*	54	35	54
4…200	1/2	160*	54	35	54
6…300	1/2	160*	54	35	54
9...450	1/2	160*	54	35	54

refering to 20 °C and 1000 mbar
* 270 with flanged hand valve

Dimensions:



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Materials:

DB04A.x.x.A: housing made of aluminium, anodised, sensor made of PBT, sealing made of FKM

DB04A.x.x.E: housing made of st.st 1.4404, electropolished, sensor made of PBT, sealing made of FKM

Options:

- special measuring ranges
- other media as air, Nitrogen, Oxygen
- sealings EPDM
- power supply 24 VDC for DB04A.1./2.
- high accuracy +/- 1 % of f.s., dynamic: 1:100
- up to 3 types of gases calibrated
- calibration certificate

G 1/4 female connection with regulating valve

G 1/2 female connection, with flanged regulating valve

G 1/4 female connection, without regulating valve

Order Code:

Order number:	DB04A.	1.	01.	A.	B.	L.

Thermal Mass Flowmeter for Gases

Models:
1 = flowmeter
2 = flowmeter with manual regulating valve
3 = flowmeter and controller
(3 alarm contacts, only with 24 VDC)
4 = flowmeter and controller with manual regulating valve
(3 alarm contacts, only with 24 VDC)

Measuring range (air, 20 °C, 1000 mbar):
1A = 0,001...0,05 Nl/min, G ¼ IG
01 = 0,004…0,2 Nl/min, G ¼ IG
02 = 0,01…0,5 Nl/min, G ¼ IG
03 = 0,04…2 Nl/min, G ¼ IG
04 = 0,1…5 Nl/min, G ¼ IG
05 = 0,4…20 Nl/min, G ¼ IG
5A = 0,8...40 Nl/min, G ¼ IG
06 = 1…60 Nl/min, G ¼ IG
07 = 2…100 Nl/min*, G ½ IG
08 = 4…200 Nl/min*, G ½ IG
09 = 6…300 Nl/min*, G ½ IG
10 = 9...450 Nl/min*, G ½ IG
S = special measuring range

Material
A = aluminium housing, valve made of brass
E = st. st. 1.4404 housing, valve made of st. st.

Options:
B = battery powered
V = voltage supply 24 VDC
E = gasket EPDM
G = higher accuracy +/- 1 % of FS, dynamic: 1:100 (up to 50 Nl/min)
3 = calibration for up to 3 different gases
9 = please indicate in writing

Medium:
L = standard-medium: air
N = standard-medium: N_2
O = standard-medium: O_2
H = Helium He
W = Hydrogen H_2
A = Argon Ar
M = Methane CH_4
P = Propane C_3H_8
S = other media (please indicate in writing)

* manual control valve flange mounted

For technical configuration of the control valve please indicate the inlet and outlet pressure

If required a calibration certificate is available.

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