

DB04A

Thermal Mass Flowmeter for Gases without Auxiliary Power

- **pressure and temperature independent measurement**
- **range: 0,001...450 NI/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 and self-explanatory programming. 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 NI/min to 9...450 NI/min. The standard calibration medium is air, but a large number of other gases can be measured as well: O₂, N₂, He, Ar etc. Because of the totalisator the device can be perfectly use for consumption measurement of the gases.

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 ₃ H ₈ (others on request) all devices are delivered free from oil and grease (wetted parts)
Norm conditions	0 °C, 1013 mbar, other on request
Gas/Calibration:	up to 3 Gas/calibrations (optional)
Gas connection:	G ¼ female up to 60 NI/min G ½ female up to 450 NI/min
Accuracy: (air)	+/- 2 % of full scale, > 200 NI/min: +/- 3 % of full scale optional: +/- 1 % of full scale (up to 50 NI/min)
Dynamic: (measuring range)	1:50, optional 1:100 (up to 50 NI/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:

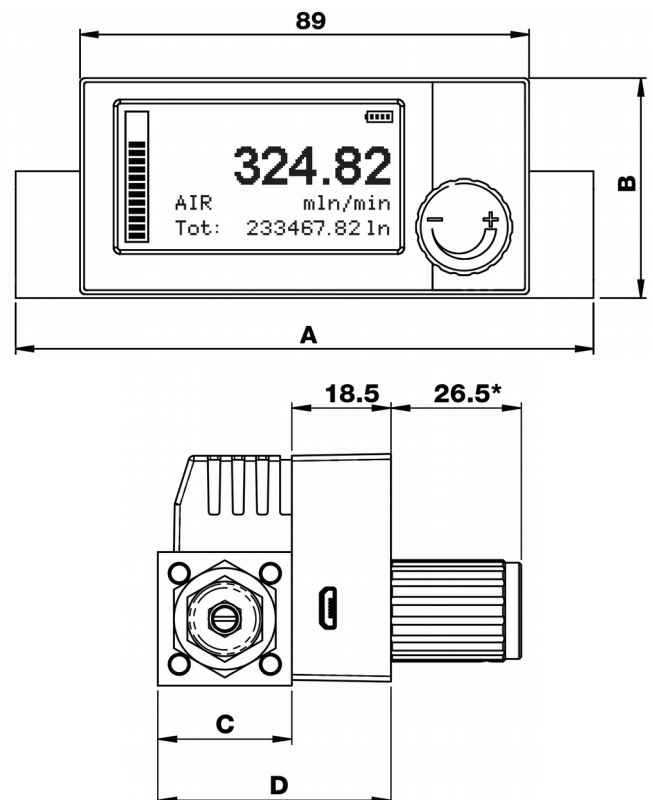
3 alarm contacts: 2 N/O:	max. current: 0,5 A max. voltage: 30 VDC
1 SPDT:	max. current: 1 A max. voltage: 30 VDC
power supply:	12...30 VDC, with reverse-pole protection
2 optical separated input channels:	voltage range: 5...30 VDC, at 5 mA max.
Including 2 m cable connection	

Measuring ranges for air and dimensions:

(Standard accuracy and dynamic)

Range [NI/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 <td 35	54	
9...450	1/2	160*	54	35	54

relating to 0 °C and 1013 mbar
* 270 with flanged hand valve

Dimensions:

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, 0 °C, 1013 mbar):

- 1A = 0,001...0,05 NI/min, G ¼ female thread
- 01 = 0,004...0,2 NI/min, G ¼ female thread
- 02 = 0,01...0,5 NI/min, G ¼ female thread
- 03 = 0,04...2 NI/min, G ¼ female thread
- 04 = 0,1...5 NI/min, G ¼ female thread
- 05 = 0,4...20 NI/min, G ¼ female thread
- 5A = 0,8...40 NI/min, G ¼ female thread
- 06 = 1...60 NI/min, G ¼ female thread
- 07 = 2...100 NI/min*, G ½ female thread
- 08 = 4...200 NI/min*, G ½ female thread
- 09 = 6...300 NI/min*, G ½ female thread
- 10 = 9...450 NI/min*, G ½ female thread
- 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 NI/min)
- 3 = calibration for up to 3 different gases
- M = Multigas option (duplicate of a programmed curve for air,
Nitrogen or Oxygen)
- 9 = please indicate in writing

Medium:

- L = standard-medium: air
- N = standard-medium: N₂
- O = standard-medium: O₂
- H = Helium He
- W = Hydrogen H₂
- A = Argon Ar
- M = Methane CH₄
- P = Propane C₃H₈
- 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.