

# DB41

## Compact thermal mass flow meter and counter for compressed air and non-aggressive gases

- **integrated upstream and downstream pipe runs for high levels of accuracy**
- **removable sensor system for easy maintenance and cleaning**
- **available for ¼" to 2" pipe sizes**
- **measuring ranges:  
0.8–90 NI/min  
to 2–900 Nm<sup>3</sup>/h**
- **local LCD display for flow rate and total**
- **output signals: 4 to 20 mA for flow rate, pulses for totalization**



### Description:

Model DB41 thermal mass flow meters and counters report and measure mass flow rates and totals of non-aggressive gases, regardless of gas pressure and temperature. Process gas flows around a heated temperature sensor that is encapsulated in glass. As a result, the sensor dissipates heat which an electronics module returns to the sensor to maintain it at a constant temperature. The dissipated heat energy is proportional to the mass flow rate of the gas and is displayed by the electronic analyzer utilizing calibration curves and process parameters stored in the instrument. A 4 to 20 mA signal outputs the flow rate to secondary evaluation devices and a pulse output with a pre-defined pulse value provides a totalizing function. High levels of accuracy are obtained by means of upstream and downstream pipe runs integrated in the instrument which ensure that the flow stream is laminar.

### Typical Applications:

Series DB41 thermal mass flow meters and counters provide flow measurement of non-aggressive gases in ¼" to 1 ½" pipe systems. Their rugged, heavy-duty design and easy handling and operation make them the right choice for measuring and monitoring compressed air consumption. They also provide measurements of other suitable gases such as: nitrogen oxygen, argon, helium and carbon dioxide.

### Service friendly through removable sensor system:

For cleaning, maintenance, or recalibration the sensor head may be removed from the pipe run without taking the flow conditioner pipe itself out of the system. This eliminates the need for a bypass pipe and ensures that the gas supply system may continue to operate even with the meter taken out.

## Models:

**DB41...:** Thermal mass flow meters and counters for gases with integrated upstream and downstream pipe runs made of stainless steel 1.4301

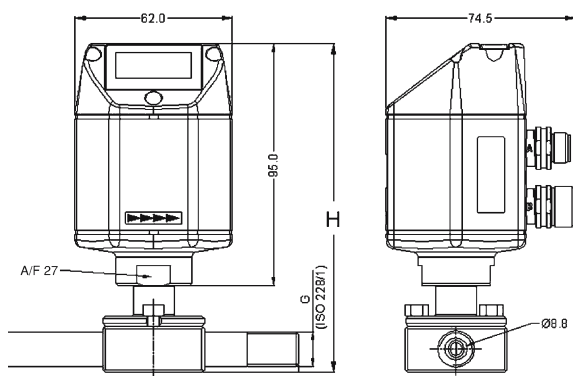
## Measuring ranges:

Process connection (G or NPT)	Pipe ID (mm)	Measuring range	Length of device pipe section (mm)
1/4"	8.8	0.8 to 90 NI/min	194**
1/2"	16.1	0.2 to 90 Nm <sup>3</sup> /h	300
3/4"	21.7	0.3 to 170 Nm <sup>3</sup> /h	475
1"	27.3	0.5 to 290 Nm <sup>3</sup> /h	475
1 1/2"	41.8	1 to 550 Nm <sup>3</sup> /h	475*
2"	53.1	2 to 900 Nm <sup>3</sup> /h	475*

\*) Shortened upstream pipe run, for best measurement results a total upstream pipe run of 10 x pipe dia. is recommended.

\*\*\*) Sensor head not removable.

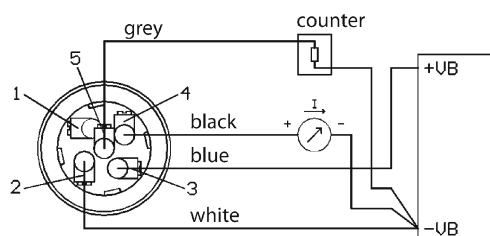
## Dimensions:



Pipe size (D)	1/4"	1/2"	3/4"	1"	1 1/2"	2"
Height (H) (mm)	129	176.4	179.2	182.6	189.9	195.9

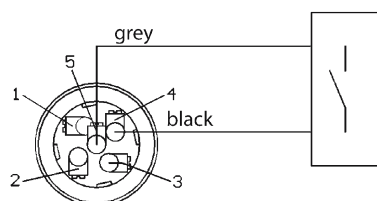
## Electrical Connection:

### Plug connector A (M12)



### Plug connector B (M12)

(pulse output galvanically separated)



## Ordering Code:

**Order Number:** DB41. G. 15. L. 0

**Thermal mass flow meters and counters for gases with integral upstream and downstream pipe runs**

### Model:

G = G male thread  
N = NPT male thread

### Measuring range and pipe size:

08 = 0.8 to 90 NI/min, 1/4"  
15 = 0.2 to 90 Nm<sup>3</sup>/h, 1/2"  
20 = 0.3 to 170 Nm<sup>3</sup>/h, 3/4"  
25 = 0.5 to 290 Nm<sup>3</sup>/h, 1"  
40 = 1 to 550 Nm<sup>3</sup>/h, 1 1/2"  
50 = 2 to 900 Nm<sup>3</sup>/h, 2"

### Process gas:

L = air  
N = nitrogen  
A = argon  
H = helium  
C = carbon dioxide  
S = oxygen  
G = nitrous oxide

### Options:

0 = none  
9 = please specify in writing

## Accessories :

- DB41-Z.L5** 5 m of cable with matching plug for analog output and supply voltage
- DB41-Z.L10** 10 m of cable with matching plug for analog output and supply voltage
- DB41-Z.N1** wall mounted power supply, 100-240 VAC, 10 VA on 24 VDC, 0.35 A
- DB41-Z.N2** plug-in power supply, 100-240 VAC on 24 VDC, 0.35 A, with 2 m cable
- DB41-Z.K5** factory calibration, 5 measuring points
- DB41-Z.V** cover lid for flow conditioner pipe

## Technical Specifications:

**max. pressure:** 16 bar

### Process gas

**temperature:** -30 to +80 °C

**Accuracy:** ± 1.5% of measured value  
plus ± 0.05 % of end value

### Measuring ranges and nominal sizes:

refer to "Ordering Code" section

**Mounting position:** any

**Voltage supply:** 12 to 30 VDC

### Outputs:

4 to 20 mA (max. load 500 ohm), pulses (1 pulse/L for DB41...08 or 1 pulse/m<sup>3</sup> for DB41...15 to 50, other pulse values available on request)

### Display :

LCD, for flow rate and total (NI/min. for DB41...08 or Nm<sup>3</sup>/h for DB41...15 to 50, other units available on request)

### Electrical

**protection:** IP65

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