

# DM08

## Compact Magnetic Inductive Flowmeter

- for electrically conductive liquids
- independent of viscosity, density, pressure or temperature of the medium
- maintenance free
- practically no pressure drop
- high measurement accuracy
- Kompakt- or separate version
- robust housing
- Fast signal processing with a 16-bit microcontroller



### Description:

The magnetic inductive flowmeter operates without moving parts. It is maintenance free and there is because of a free tube cross section practically no pressure drop.

Measuring ranges from 0,72 until 1131 m<sup>3</sup>/h with flange connections DN32 until DN200 are available.

The device comes as standard version with a dual digital display with a simple menu driven operation/programming (e.g. measuring range, pulse rate, low flow cut off). For example the flow volume, device status, limit values, flow direction, empty pipe detection can be displayed. The display electronic operates with a 16 bit microcontroller by what a fast reaction time <100 ms can be achieved. As output signal are two versions available: frequency output or analogue- and frequency output. The flowmeters are equipped with 3 independent totalisers to count partial and total amounts.

### Application:

Because of the full bore and the various lining- and electrode material the flowmeter DM08 can be used for almost all media with the indicated minimum conductivity of 50 µS/cm.

Viscosity, impurities in the media or density fluctuations have no impact for the measurement. Particularly for the following sectors the DM08 can be used:


- water and waste water
- mining, cement and mineral material
- cellulose- and paper industry
- acids and lyes
- agriculture
- energy industry- and public utility
- paint industry



 **PKP Prozessmesstechnik GmbH**  
Borsigstr. 24 • D-65205 Wiesbaden

☎ +49-(0)6122-7055-0 • ☎ +49-(0)6122 7055-50  
✉ info@pkp.de • 🌐 www.pkp.de



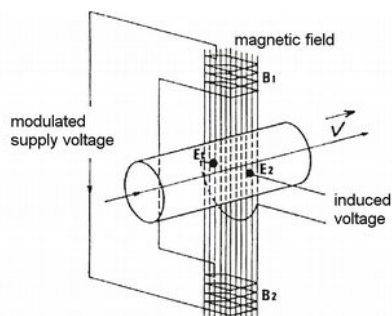
 **PKP Process Instruments Inc.**  
10 Brent Drive Hudson, MA 01749

☎ +1-978-212-0006 • ☎ +1-978-568-0060  
✉ info@pkp-usa.com • 🌐 www.pkp-usa.com

## Operating principle:

The magnetic inductive flow measuring is based on the Faraday's induction principle. The to be measured liquid (electric conductive) flows perpendicular to a magnetical field. Thereby voltage is induced into the liquid.

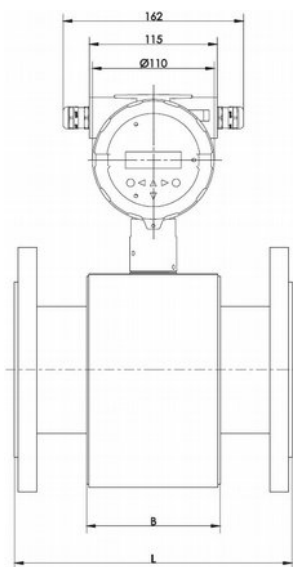
The voltage is tapped by 2 electrodes which are inserted into the measuring tube and analysed by the electronic. The voltage level is proportional to the flow velocity.



## Measuring ranges and dimensions:

Nominal size	Measuring ranges [m³/h]	Factory set measuring range [m³/h] equates 4...20mA	Pressure rate flange EN1092-1 *)	Installation length hard rubber and PTFE/ (with protective ring)
32	0,25...29	0...10	PN40	200/(206)
40	1,2...45	0...10	PN40	200/(206)
50	1,8...70	0...20	PN40	200/(206)
65	3...119	0...50	PN16/40	200/(206)
80	4,5...180	0...50	PN16/40	200/(206)
100	7...280	0...70	PN16/40	250/(256)
125	11...440	0...100	PN16/40	250/(256)
150	16...636	0...150	PN16/40	300/(306)
200	28...1130	0...250	PN10/16/25/40	350/(360)

\*) Pressure rate ANSI B16.5 150RF 19,6 bar carb. steel 15,9 bar st. steel



## Model Code:

Order Number: **DM08. 32. 1. S. P. E. 0. K. 1. 0.**

### Magnetic-Inductive Flow Meter

#### Nominal size:

32 = DN32	0,25...29 m³/h
40 = DN40	1,2...45 m³/h
50 = DN50	1,8...70 m³/h
65 = DN65	3...119 m³/h
80 = DN80	4,5...180 m³/h
100 = DN100	7...280 m³/h
125 = DN125	11...440 m³/h
150 = DN150	16...636 m³/h
200 = DN200	28...1130 m³/h

#### Process connection:

D10	= EN1092-1 PN10 ≥ DN200
D16	= EN1092-1 PN16 ≥ DN65
D25	= EN1092-1 PN25 ≥ DN200
D40	= EN1092-1 PN40 ≥ DN32
A150	= ANSI B16.5 150RF

#### Material process connection:

S = carbon steel 1.0460  
E = stainless steel 1.4571

#### Lining:

P = PTFE  
H = hard rubber

#### Material electrodes:

E = stainless steel 1.4571  
H = Hastelloy C276

#### Earth electrode:

0 = without  
1 = one  
2 = two

#### Design:

K = compact design  
G = separate design

#### Power supply:

1 = 230 VAC, 50/60 Hz/15VA  
2 = 19...36 VDC


#### Options:

0 = without  
2 = 20 mA output adjusted to custom value, please specify desired flow value  
1 = protective ring  
9 = please specify in text



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## Technical Data:

<b>Max. pressure:</b>	see table "Measuring ranges and dimensions"
<b>Medium temperature:</b>	PTFE: -20...100°C at 40 bar -20...150°C at 25 bar -20...180°C at 16 bar Hard rubber: 0...90°C Process connection carbon steel: ≥ -10°C Process connection stainless steel: -20°C
<b>Ambient temperature:</b>	PTFE: -20...100°C Hard rubber: 0...80°C Indicating electronic: -20...50°C*** Process connection carbon steel: ≥ -10°C Process connection stainless steel: -20°C
<b>Accuracy:</b>	±0,5% of rate additionally with frequency output: ± 0,05% pro 10 K analogue output: ± 0,1% pro 10 K
<b>Repeatability:</b>	±0,15% or rate
<b>Reponse time:</b>	< 100 ms (depending on the adjustment of the electronic)
<b>Min. conductivity of medium:</b>	Water and other conductive liquids ≥ 50 µS/cm
<b>Flow indicator:</b>	LCD with backlight adjustable units: m³, l, US Gallon, UK Gallon, ft³, kg, t. display of actual flow value and/or total amount, 3 independent counters

## Material:

<b>Measuring tube:</b>	St. steel
<b>Process connection:</b>	Carb. steel or st. steel
<b>Lining:</b>	PTFE or Hard rubber
<b>Electrodes:</b>	St. steel 1.4571 or Hastelloy C276

\*\*\*Under 0 °C the readability of the LCD- display is restricted.

## Separate design sensor:



## Output signal:

### Frequency output

<b>Configuration:</b>	Impulse- or frequency signal selectable
<b>Impulse significance:</b>	≤ 1000 impulse/s
<b>Impulse width:</b>	≥ 0,1 ms (max. 2 s), adjustable
<b>Frequency:</b>	0...1 kHz
<b>Signal form:</b>	Squarewave signal

### Analogue output

<b>Operating range:</b>	0 ... 20 mA / 4 ... 20 mA, selectable
<b>Current limitation:</b>	21,6 mA
<b>Max. burden:</b>	600 Ω
<b>Short-circuit proof:</b>	Permanent

### Alarm output

<b>Quantity:</b>	2
<b>Version:</b>	Optocoupler
<b>Function:</b>	Status output: Prewflow, backflow, MIN flow rate, MAX flow rate, Alarm (adjustable)
<b>Switching values:</b>	U <sub>max</sub> : 30 V; I <sub>max</sub> : 60 mA; P <sub>max</sub> : 1,8 W

## Electrical Data:

<b>Electrical connection:</b>	Cable gland M20 x 1,5
<b>Power supply:</b>	230 VAC -15 % / +10 %, 50/60 Hz 19...36 VDC
<b>Indicator:</b>	2-line indicator
<b>Protection EN60529:</b>	IP67

## Accessories:

Sensor cable 5 or 10 m  
Grounding ring  
Protection ring

## Separate design electronic:



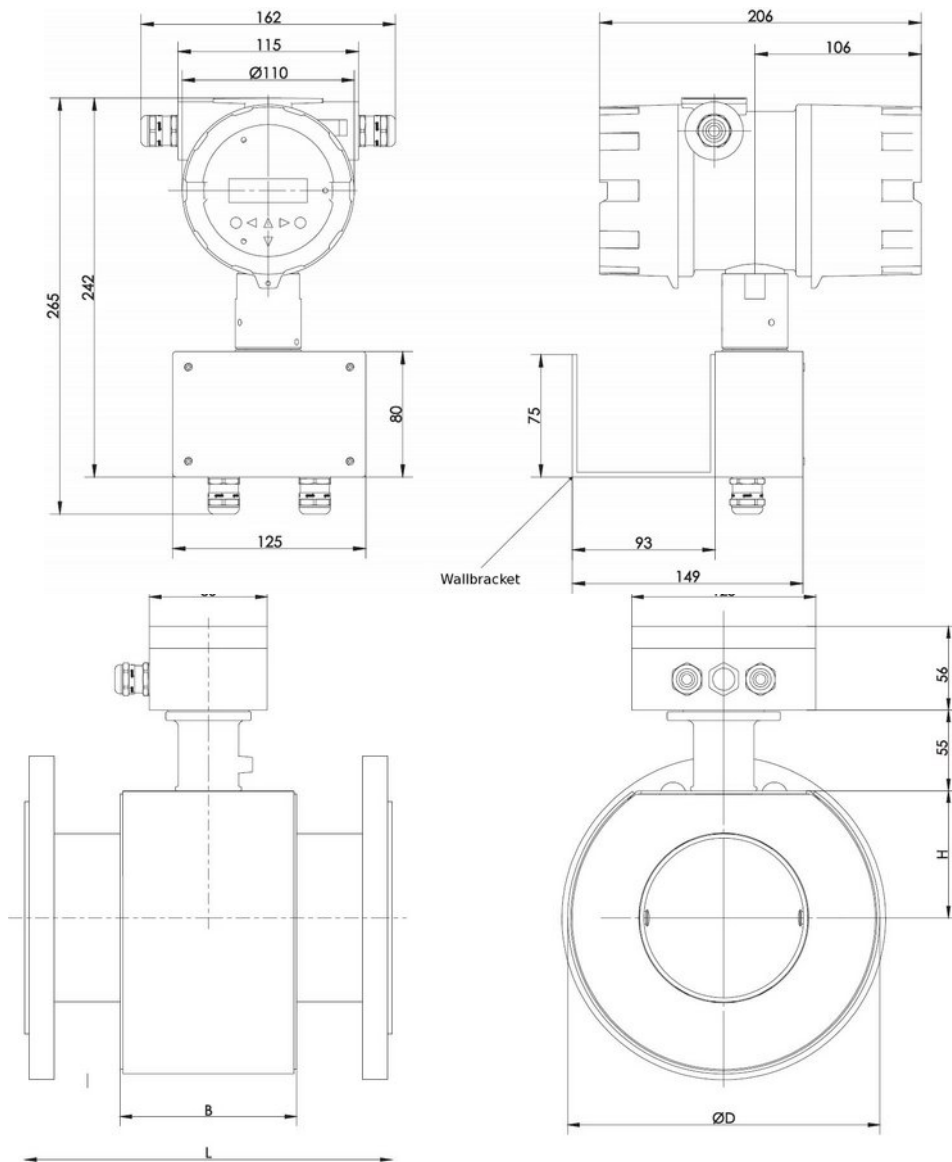
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Process connection	Mounting length L				Sensor			Weight EN 1092-1 [kg]
	Hard rubber	PTFE without protection ring	PTFE with protection ring	tolerance	B	D	H	
EN 1092-1/ ANSI B16.5								
DN32/1¼"	200	200	206	+0/-3	80	130	53	7
DN40/1½"	200	200	206	+0/-3	80	130	53	7,5
DN50/2"	200	200	206	+0/-3	80	140	57	9
DN65/2½"	200	200	206	+0/-3	80	155	63	10
DN80/3"	200	200	206	+0/-3	80	170	70	13
DN100/4"	250	250	256	+0/-3	120	210	86	15
DN125/5"	250	250	256	+0/-3	120	240	98	19
DN150/6"	300	300	306	+0/-3	120	285	117	23
DN200/8"	350	350	360	+0/-3	200	350	143	36



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