

DU04

Precision ultrasonic flow meter for liquids

- largely unaffected by sound velocity, density, temperature and viscosity
- measuring accuracy: $\pm 0.75\%$ of full scale
- high dynamic response, turndown ratio greater than 80:1
- materials: brass, ULTEM
- output signal: 4-20 mA, 2-wire
- bi-directional, with optional output for direction of flow



Description:

Model DU04 ultrasonic flow meters accurately measure the flow rates of liquids, irrespective of density, temperature and viscosity. The devices work according to the differential time of flight principle and have a built-in intelligent electronics module with a self calibration feature that allows different liquids to be monitored without the need for recalibration. Two different measuring ranges can be selected via DIP switch for each device size. The update time (2s or 10s) is also set via DIP switch.

The DU04 ultrasonic flow meters are supplied with either a threaded connection (G or NPT) or a flange connection (DIN or ANSI, DN80 / 3" only) in a brass enclosure.

The device causes practically no extra pressure drop as the sensors are integrated in the pipe wall. The DU04 flow meters provide an analog output signal, which is proportional to the flow rate; and a state output, which signals fault conditions (sensor failure or too many gas bubbles in the flow stream) or the direction of flow.

Typical Applications:

DU04 ultrasonic flow meters are designed to measure the flow volume of clean or slightly dirty/contaminated liquids. The DU04 is the instrument of choice for applications, where – due to the low conductivity of the liquid being monitored – conventional magnetic-inductive flow meters cannot be deployed.

Models:

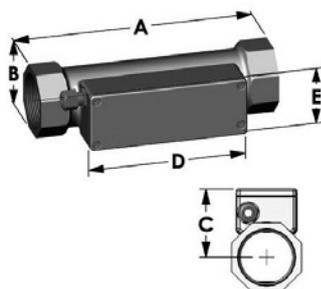
DU04.M: standard model – enclosure made of brass, sensors made of ULTEM, gaskets Viton process connection: 3/4" to 2" female thread, G or NPT, 3" DIN or ANSI flange

Measuring ranges:

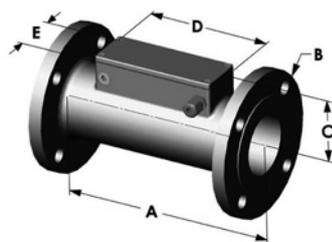
pipe size	Measuring ranges			
	l/min	Code	GPM	Code
DN20 / 3/4"	0,72...60	LL	0,18...15	LG
	1,2...100	HL	0,31...25	HG
DN25 / 1"	1,38...115	LL	0,38...30	LG
	2,4...200	HL	0,63...50	HG
DN40 / 1 1/2"	1,8...150	LL	0,5...40	LG
	3,6...300	HL	1...80	HG
DN50 / 2"	2,7...225	LL	0,75...60	LG
	6,9...575	HL	1,88...150	HG
DN80 / 3"	9...750	LL	2,48...200	LG
	18...1500	HL	4,96...400	HG

Dimensions:

DU04 with threaded connection:



DU04 with flange connection:



Pipe size	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
3/4" + 1"	234	41,1	52,3	163	61
1 1/2" + 2"	251	69,9	63,8	163	61
DN80 / 3"	280	190	84	165	63,5

Model Coding:

Order Number: DU04. M. V. 25G HL25 0

Precision ultrasonic flow meter

Model:

M = brass enclosure, sensor made of ULTEM

Gasket:

B = Buna-N

N = Neopren

V = Viton (Standard)

Process connection:

20G = G 3/4 female thread

20N = 3/4" NPT female thread

25G = G 1 female thread

25N = 1" NPT female thread

40G = G 1 1/2 female thread

40N = 1 1/2" NPT female thread

50G = G 2 female thread

50N = 2" NPT female thread

80D = DIN flange DN80 PN16

80A = ANSI flange 3", 150 lbs., RF

Measuring range:

(see table "Measuring ranges", xx = pipe size):

LLxx = low measuring range, l/min

HLxx = high measuring range, l/min

LGxx = low measuring range, GPM

HGxx = high measuring range, GPM

Options:

0 = none

DF = state output for direction sensing

9 = please specify in writing

Technical Specifications:

Max. pressure: 16 bar

Liquid temperature: -40 to +80 °C

Density: 0,49–1,2 kg/l

Viscosity: 0,2–150 mPas

Measurement uncertainty: ± 0.75% of full scale

Flow rate: 2 measuring ranges per pipe size, selectable

Direction of flow: bi-directional, state output for direction of flow, optional

Mounting position: any, preferably horizontal

Power supply: 18–36 VDC

Output signals: 4-20 mA, 2-wire, state output for fault indication

Update time: 2 or 10 s, selectable

Electrical connection: screw terminals on circuit board, cable gland M16x1.5

Protection rating: IP65

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