

KDG Series AC605L

Ultrasonic dual mode flowmeter

Data sheet
IP372

- ▶ Dual mode flowmeter
- ▶ Easy to install clamp-on sensors with no process interruption
- ▶ Non-invasive flow measurement of liquids, no pipeline disturbance, no pressure loss
- ▶ Suitable for commonly used pipe materials with pipe diameters from 10 mm to 6.5m
- ▶ 1 or 2 flow channels



Description

The ultrasonic flowmeter AC605L determines the flow rate of liquid media in closed pipes. The field mounted flow transmitter can be configured via keypad without any additional programming devices and is available as single or dual channel unit. The measurement of flow is based on the principle that sound waves are influenced by the flowing medium. Measurements are made by penetrating the pipe with ultrasound and subsequently time differences, frequency variations or phase shifts of the ultrasonic signals are evaluated. This measuring technique has no effect on the flowing liquid. There is no pressure loss in the pipe and no wear on components of the measuring device.

Advantages:

- ▶ Low installation effort and costs
- ▶ Measurement is independent of fluid conductivity and pressure
- ▶ No pressure loss, no possibility of leakage
- ▶ Retrospective installation for existing plants possible
- ▶ No cutting of pipes necessary, no interruption of process, no plant shut down
- ▶ No additional fittings for maintenance required
- ▶ Hygienic measurement, no risk of contamination, suitable for ultra clean liquids
- ▶ No contact with medium, no risk of corrosion when used with aggressive media
- ▶ Cost advantages when used with large diameter pipes, high pressure systems, etc. Low stocking costs, nearly all pipe sizes are covered with only 2 types of sensors

Technical data

Measuring principle	Ultrasonic time difference correlation principle and NoiseTrek™
Flow velocity range	0.01 ... 25 m/s
Resolution	0.025 cm/s
Repeatability	0.15 % of measured value ± 0.015 m/s
Accuracy	
Volume flow:	± 1 ... 3 % of measured value depending on application ± 0.5 % of measured value with process calibration
Flow velocity:	± 0.5 % of measured value
Gaseous and solid content	< 10 % of volume
Transmitter	
Enclosure	Wall mounted housing
Degree of protection	IP65 according to EN 60529
Operating temperature	-10 ... 60 °C
Housing material	Aluminium, powder coated
Flow channels	1 ... 2
Power supply	100 ... 240 V AC / 9 ... 18 V DC / 18 ... 36 V DC / 36 ... 72 VDC
Display	2 x 16 characters, dot matrix, backlit

Technical data

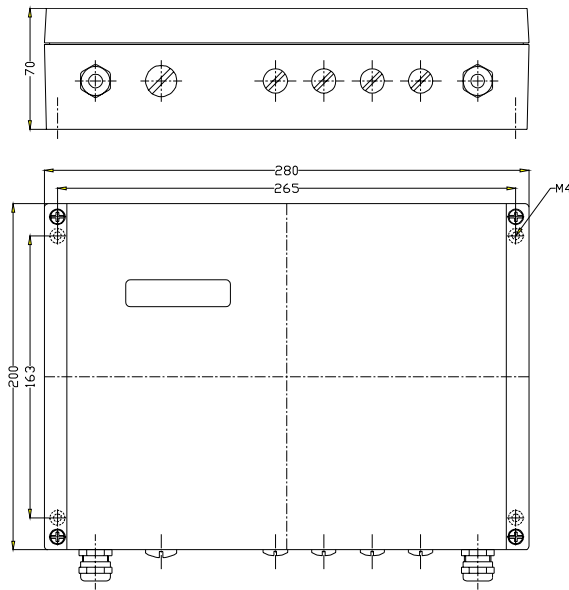
Dimensions	W x H x D: 280 x 200 x 70 mm
Weight	Approx 2.8 kg
Power consumption	< 15 W
Signal damping	0 ... 60 s
Response time	1 s
Measuring cycle	100 ... 1000 Hz, single channel
Calculation functions	Average/difference/sum
Operating languages	Selectable between Danish, English, German, French, Dutch, Norwegian, Polish, Czech, Turkish
Quantities of measurement	Volume flow, flow velocity, mass flow
Communication	RS485 optional
Process outputs	Galvanically isolated from main electronics, configurable
- Current	0/4...20 mA; passive ($U_{ext} < 24 V$) or active ($R_{ext} < 500 W$)
- Voltage	0...1 V or 0...10 V, $R_i = 500 W$
- Frequency	0...1 kHz or 0...10 kHz; (OC)
- Digital (pulse, status)	
Totaliser value:	0.01...1000 /unit; width: 80 ... 1000 ms; (OC/Reed)
	Reed = Reed-NO contact (48 V / 0.5 A)
	OC = Open-Collector

Clamp-on flow sensors:	
Type M2N, M2E	
Rated (possible) diameter range	DN (50) 100 ... DN 6500
Dimensions	30 x 33 x 60 mm
Material	Stainless steel
Temperature range M2N:	-30 °C ... 130 °C
M2E:	-30 °C ... 200 °C, for short periods up to 300 °C
Degree of protection IP65 acc.	EN 60529, IP68 optional
Type Q3N, Q3E	
Rated (possible) diameter range	DN (10) 25 ... DN (400) 1000
Dimensions	16 x 18 x 33 mm
Material	Stainless steel
Operating temperature Q3N:	-30 °C ... 130 °C
Q3E:	-30 °C ... 200 °C, for short periods up to 300 °C
Degree of protection IP65 acc.	EN 60529, IP68 optional
Type Q4N-Ex, M4N-Ex	
Rated (possible) diameter range Q4N-Ex:	DN (10) 25 ... 400 (1000)
M4N Ex:	DN (50) 100 ... 3000
Dimensions	30 x 33 x 60 mm
Material	Stainless steel
Operating temperature	-20 °C ... 120 °C
Degree of protection	IP65 acc. EN 60529, IP68 optional
Protection concept	Encapsulation
Certification code	EEx m II T4 - T6

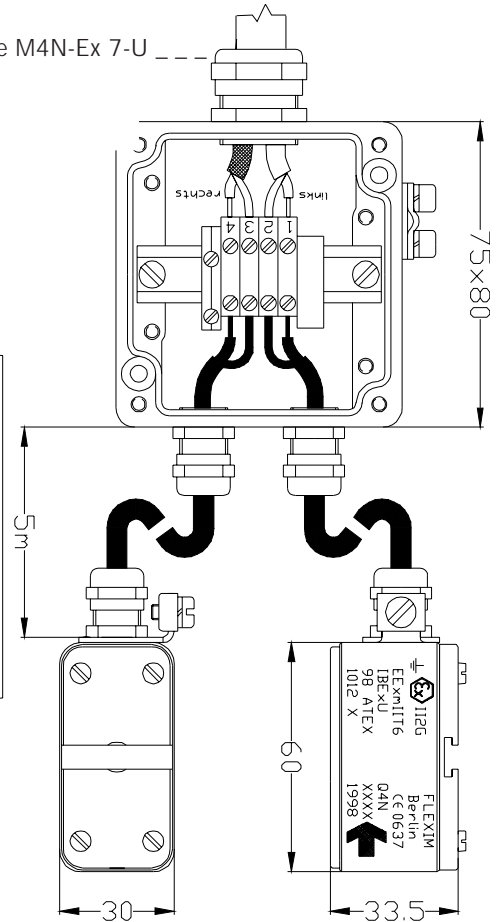
The sensors are suitable for use in hazardous areas classified as Zone 1 and 2. The transmitter unit must be placed in the safe area (max. cable length = 200 m).

Dimensions

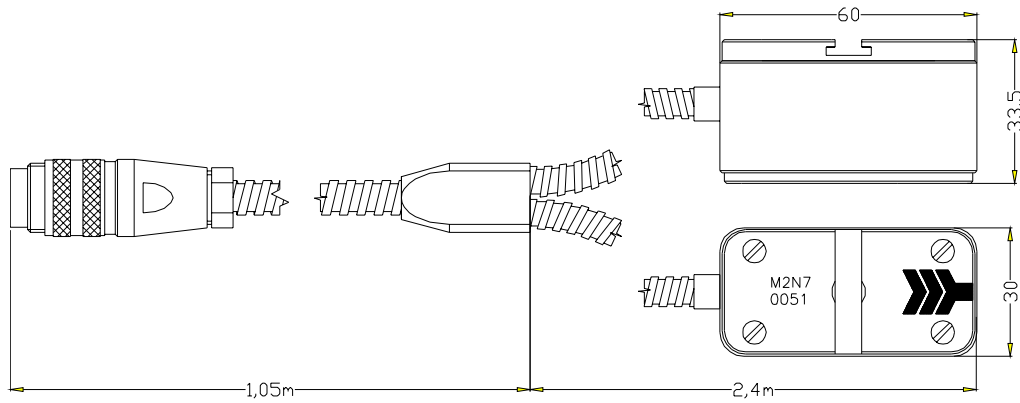
AC605L Transmitter



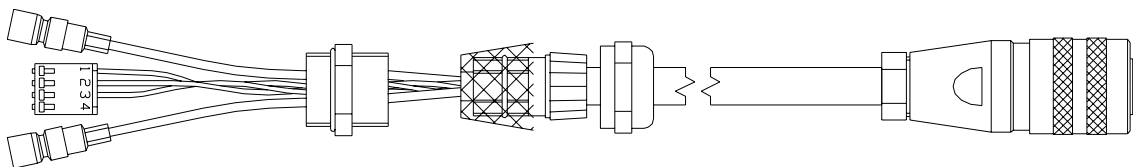
Sensors type M4N-Ex 7-U



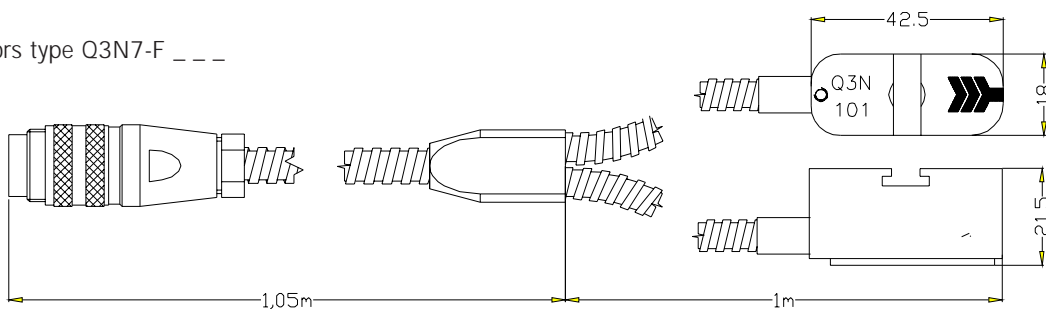
Sensors type M2N7-F



Connection cable



Sensors type Q3N7-F



Ordering information

Transmitter

AC605L		Basic Unit				
Code	Enclosure					
N	Always N					
Code	Channels					
1	Channel unit					
2	Channel unit					
Code	Process outputs*					
P:	Always P: P: with process output type and number of channels, max. 5 process output channels.					
Code	Type channel					
N	Without process outputs					
I	Current 0/4 ...20mA, active (source)					
J	Current 0/4 ...20mA, passive (sink)					
U	Voltage 0... 1V					
V	Voltage 0... 10V					
F	Frequency 0 ... 1kHz					
G	Frequency 0 ... 10kHz					
R	Digital (pulse/status) - relay					
Code	Process connection					
/Z	Special					
* Limited number of inputs and outputs available. If unsure, please ask.						
↓	↓	↓	↓	↓	↓	
AC605L	N	2	P:	I	/Z	Typical ordering code

Example: AC605L-N2-P:I2R2

AC605L, 2-channel unit, 2 x analogue output – current active, 2 x relay outputs

Clamp-on sensors

Q3	DN (10) 25 ... 400 (1000), 4 MHz				
M2	DN (50) 100 ... 3000, 1 MHz				
Code	Temperature				
N	Standard temperature : -30 ... 130°C				
E	High temperature : -30 ... 200 (300) °C				
Code	Version				
7-	Channel unit				
Code	Connection				
P	002 (for Q3) Always (002 or 003) with Lemo connector 003 (for M2)				
F	010 Fitted with SMB-Coax connector for fixed instruments 020 050				
U	No connector, flying leads				
Code					
- - -	Cable length in m				
Code					
/Z	Special				
↓	↓	↓	↓	↓	↓
QD	N	7	F	-	Typical ordering code

Example: Q3N7-F010

Q3N sensors, standard temperature, for use with AC605L, fitted with SMB-Coax connector, 10 m cable length

KDG Instruments

Authorised distributor: **Ward Industries Limited**

Tel: +44 (0)1933 624963 Fax: +44 (0)1933 625458

Email: sales@wardindustries.co.uk

Web: www.wardindustries.co.uk

solartron
mobrey

a Roxboro Group Company



The right is reserved to amend details given in this publication without notice

IP372
Mar 02