

# KDG AC615

## Portable dual mode flowmeter

Data sheet  
IP373

### Description

The portable ultrasonic flowmeter AC 615 determines the flow rate of liquid media in closed pipes.

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 possibility of leakage
- Retrospective installation for existing plants possible
- No cutting of pipes necessary
- 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
- Dual measuring mode (transit-time and NoiseTrek™)
- Indication and output of speed of sound data of liquid possible
- Cost advantages when used with large diameter pipes, high-pressure systems, etc.

- ▶ Portable 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 6.5 m
- ▶ Integrated pipewall thickness measurement, 2 flow channels

### Technical specification

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, degree of protection	Portable, IP 54 according to EN60529
Ambient temperature	-10 ... 60 °C
Housing material	Aluminium powder coated
Flow channels	2
Power supply	Internal rechargeable battery, 6 V/4 Ah, or external power supply
Operating time with internal battery	> 14 h
Display	2 x 16 characters, dot matrix, backlit



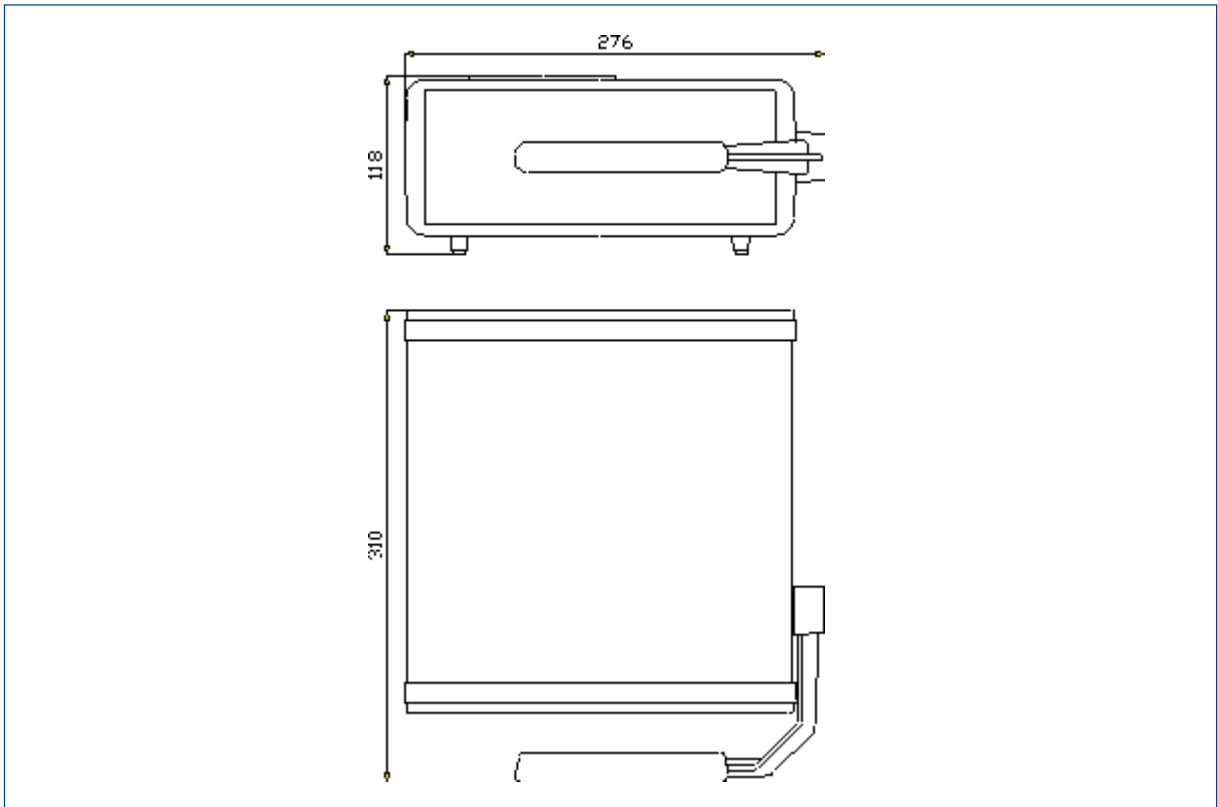
## Technical specification

Dimensions	270 x 100 x 180 mm (without handle)
Power consumption	< 15 W
Signal damping	0 ... 60 s, user configurable
Response time	1 s, optional 70 ms
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, temperature, heat quantity, heat flow
Internal data logger	27,000 values, optional > 100,000 values
Logging data	All measured and totalised values
Communication	RS232
Data	Instantaneous measured value, parameter set and configuration, logged data
Software	FluxData
Functionality	Downloading of measured values/parameter set, graphical presentation, list format, export to third party software, on-line transfer of measured data
Operating systems	Windows™ 3.11, 95, 98, NT
Process inputs	Galvanically isolated from main electronics - Temperature PT 100, four-wire circuit, measuring range: - 50 ... 400 °C - Current 0 ... 20 mA; Ri = 50 W - Voltage 0 ... 1 V; Ri = 1 MW
Process outputs	Galvanically isolated from main electronics - Current 0/4 ... 20 mA; passive (Uext < 24 V) or active (Rext < 500 W) - Voltage 0 ... 1 V or 0 ... 10 V, Ri = 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 (300 V / 0.5 A) OC = Open-Collector

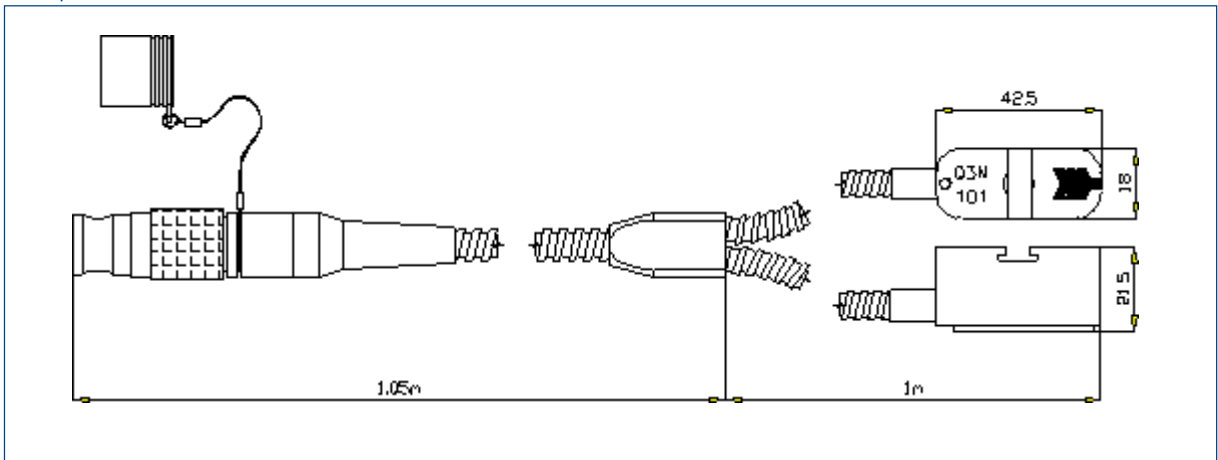
### Clamp-on flow sensors:

<b>Type M2N, M2E</b>	
Rated (possible) diameter range	(50) 100 ... 6500 mm
Dimensions	30 x 33 x 60 mm
Material	Stainless steel
Temperature range M2N:	-30 ... 130 °C
M2E:	-30 ... 200 °C, for short periods up to 300 °C
Degree of protection IP65 acc.	EN60529, IP67 optional
<b>Type Q3N, Q3E</b>	
Rated (possible) diameter range	(10) 25 ... 400 (1000) mm
Dimensions	16 x 18 x 33 mm
Material	Stainless steel
Temperature range Q3N:	-30 ... 130 °C
Q3E:	-30 ... 200 °C, for short periods up to 300 °C
Degree of protection IP65 acc.	EN60529, IP67 optional
Wall thickness measurement	
Measuring range	1.0 ... 200 mm
Resolution	0.01 mm
Linearity	0.1 mm
Temperature range	Standard version: 20 ... +60 °C High temperature version: 0 ... +200 °C, for short periods up to +540 °C

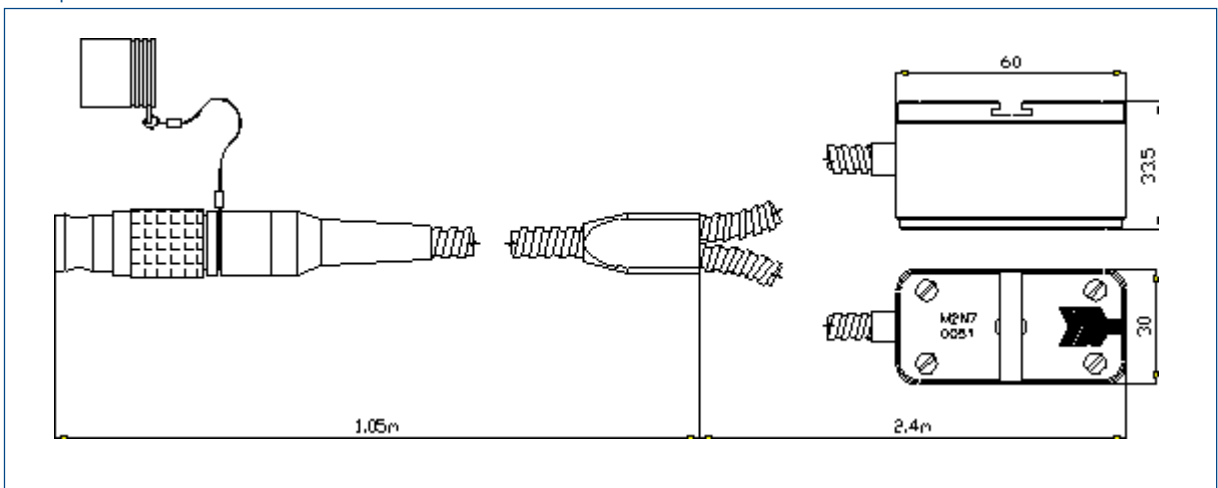
Outline dimensions, AC 615



Clamp-on sensors Q3N/E



Clamp-on sensors M2N/E



AC615-	Device	
Code	Config	
O- A-	Basic unit without accessories Including transport case, mounting chains, power adapter, measuring tape, coupling paste, operating instructions, software, RS 232 cable.	
Code	Type channel	
P:	Always P:	
Code	Type channel	
N	Without process outputs	
I	Current 0/4 ... 20 mA, active (source)	
J	Current 0/4 ... 20 mA, passive (sink)	
U	Voltage 0 ... 1V	
V	Voltage 0 ... 10V	
F	Frequency 0 ... 1kHz	
G	Frequency 0 ... 10 kHz	
R	Digital (pulse/status) relay	
C	Digital (pulse/status) Open Collector	
Code	Type channel	
-T:	Always - T:	
Code		
N	Without process input	
I	Current 0/4 ... 20 mA, active (source)	
J	Current 0/4 ... 20 mA, passive (sink)	
U	Voltage 0 ... 1V	
R	PT100 temperature input with heat quantity measurement option with min. 2 process inputs	
Code	Logger	
-S	Standard 27.000 values	
-E	Extended 100.000 values	
Code	Option	
/TN	With wall thickness probe NT incl. cable	
/TH	With wall thickness probe NT incl. cable	
/SSPA	Medium sound velocity measurement, current output active, digital output	
/SSPP	Medium sound velocity measurement, current output active, digital output	
/Z	Special *Limited number of inputs and outputs available, if unsure please ask.	

**Example: AC615-A-P:I2R2-T:R2-S/TN**

AC615L with transport case and accessories, 2 x analogue outputs current active, 2 x relay outputs, no analogue inputs, internal logger 27.000 values, heat quantity measurement option incl. 2 inputs PT100 und sensors, wall thickness probe high temperature


**Example: Q3N7-P002:** Q3N sensor, standard temperature, for use with AC615, 2 m cable length

**Additional accessories:** Cable extensions for ... P ... sensors (2.5 / 5 /10 / XX m), mounting rail for Q ... sensors, high temperature acoustic coupling paste, carry case, etc.

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