KATRONIC

Portable Ultrasonic Flowmeter FLUXUS® ADM 6725

- **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 all commonly used pipe materials with pipe diameters from 6 mm to 6.5 m (1/4" to 256")**
- **Integrated wall thickness measurement, 2 flow channels**

Description

The FLUXUS range of non-invasive flowmeters utilises ultrasonic technology for the accurate flow measurement of liquids in full pipes.

The portable device has been designed to meet the needs of the Service/Maintenance and Commissioning Engineer wishing to check the flow rate of liquids at different locations in the plant. The set-up of the unit is simple and user friendly in order to obtain the required flow information in minutes.

The measurement of flow is based on the principle that sound waves are influenced by a flowing medium. Measurements are made by penetrating the pipe with ultrasound and subsequently time differences, frequency variations and phase shifts of the ultrasonic signals are evaluated.

The ultrasonic sensors are clamped onto the outside of the pipe, thus eliminating the need to dismantle the pipework and interrupt the process. The FLUXUS ADM 6725 can be applied to any type of standard pipe carrying clean or dirty liquids.

Advantages

- Low installation effort and costs
- Dual measuring mode (transit-time and NoiseTrek™)
- 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.

Specification

General

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
Turn down ratio	:	1/200
Gaseous and solid content of medium	:	< 10 % of volume

Flow transmitter

Enclosure	:	Portable
Degree of protection	:	IP 54 according EN 60529, IP 68 optional
Operating temperature	:	-10 ... 60 °C (14 ... 140 °F)
Housing material	:	Aluminium, powder coated
Flow channels	:	2
Power supply	:	Internal recharable battery, 6 V/4 Ah, or external power supply 9 ... 15 V DC
Operating time	:	> 14 h with fully charged battery
Display	:	2 x 16 digit LCD, dot matrix, backlit
Dimensions	:	H 118 x W 276 x D 310 mm (with handle)
Weight	:	3.5 kg
Power consumption	:	< 2.5 W in measurement mode
Signal damping	:	0 ... 60 s, configurable

Flow transmitter (cont.)

Response time	: 1 s, 70 ms optional
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

Quantity and units of measurement

Volumetric flow rate	: m^3/h, m^3/min, m^3/s, l/h, l/min, l/s, USgph, bls/d (barrels per day)
Flow velocity	: m/s, inch/s
Mass flow rate	: g/s, t/h, kg/h, kg/min
Volume	: m^3, l, gal (gallons)
Mass	: g, kg, t
Heat flow	: W, kW, MW (only with heat quantity measurement option)
Heat quantity	: J, kJ, MJ (only with heat quantity measurement option)

Internal data logger

Storage capacity	: approx. 27,000 (optional > 100,000) measuring values
Logging data	: All measured and totalised values, parameter sets

Communication

Serial interface	: RS 232
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; R_i = 50 Ω
Voltage	: 0 ... 1 V; R_i = 1 MΩ

Process outputs	: Galvanically isolated from main electronics
Current	: 0/4 ... 20 mA; passive (U_{ext} < 24 V) or active (R_{ext} < 500 Ω)
Voltage	: 0 ... 1 V or 0 ... 10 V, R_i = 500 Ω
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 sensors

Type M2N, M2E

Rated (possible) diameter range	: (50) 100 ... 6500 mm
Dimensions	: 60 x 30 x 34 mm
Material	: Stainless steel
Temperature range	: *M2N* -30 ... 130 °C (-22 ... 266 °F) *M2E* -30 ... 200 °C (-22 ... 392 °F), for short periods up to 300 °C (572 °F)
Degree of protection	: IP 65 acc. EN 60529, IP 68 optional

Type Q3N, Q3E

Rated (possible) diameter range	: (10) 25 ... 400 (1000) mm
Dimensions	: 43 x 18 x 22 mm
Material	: Stainless steel
Temperature range	: *Q3N* -30 ... 130 °C (-22 ... 266 °F) *Q3E* -30 ... 200 °C (-22 ... 392 °F), for short periods up to 300 °C (572 °F)
Degree of protection	: IP 65 acc. EN 60529, IP 68 optional

Special clamp-on sensors

Type S2N	: For very small pipe diameters 6 ... 40 (100) mm
Other types	: On request

Wall thickness measurement

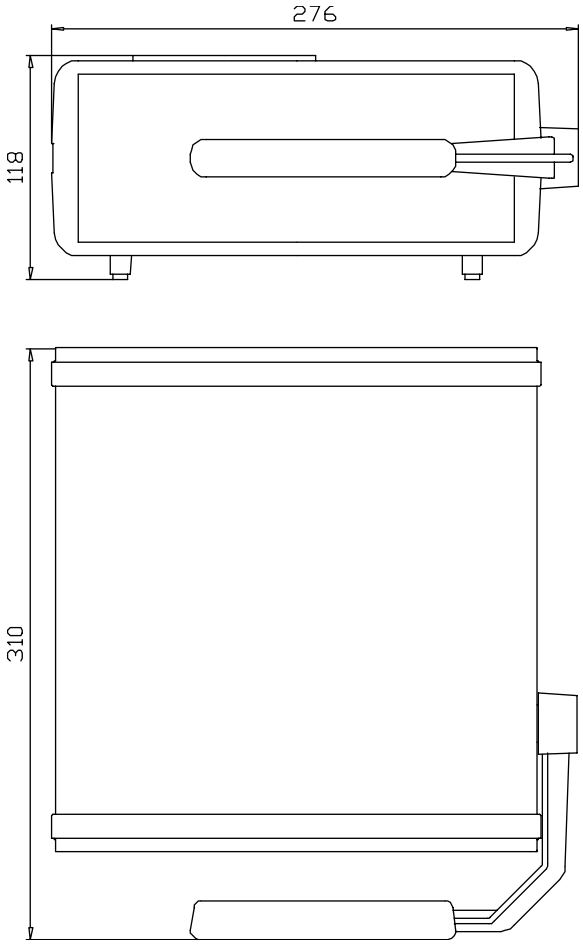
Measuring range	: 1.0 ... 200 mm
Resolution	: 0.01 mm
Linearity	: 0.1 mm
Temperature range	: Standard version -20 ... 60 °C High temperature version 0 ... 200 °C, for short periods up to 540 °C

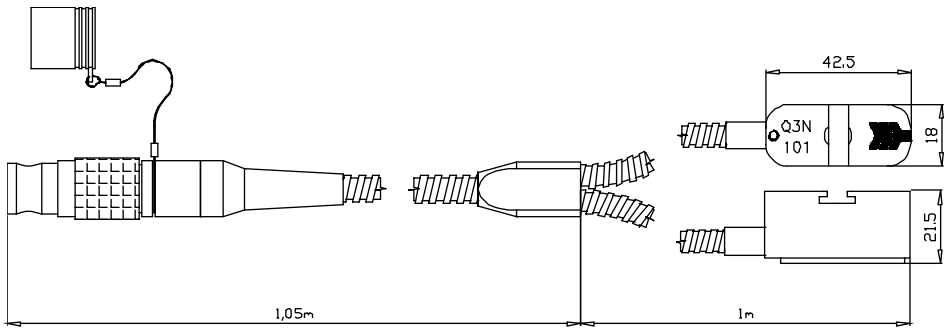
Accessories

- External power supply 230 V, 50Hz/12 V, 1.2 A; IP 30
- Car power adapter 12 V, 2 A
- Leather carying case 330 x 340 x 220 mm
- Cable extension 3 m, 5 m, 10 m or 20 m
- Sensor positioning rail for sensors type Q3, stainless steel V2A
- External printer, ink jet 192 dpi

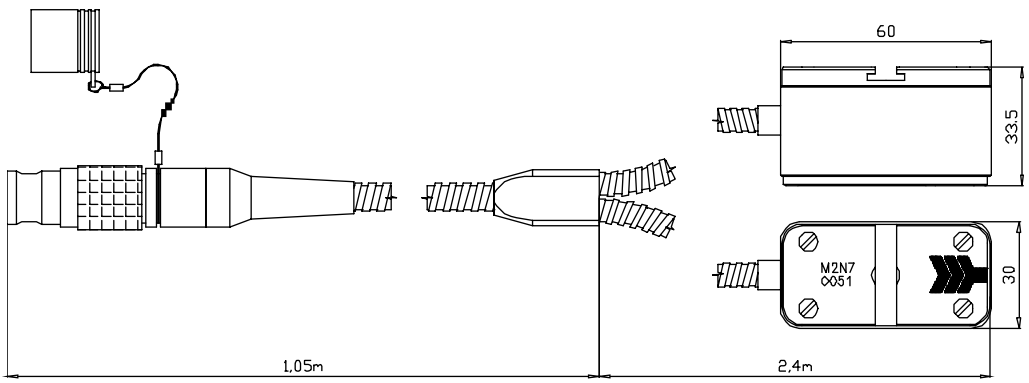
External dimensions

Portable flow transmitter
FLUXUS ADM 6725





Clamp-on sensors type Q3N-7-P002



Clamp-on sensors type M2N-7-P003

Order code	ADM 6725 - x -P:x x - T:x x - x - x - x - x
Configuration:	
Basic unit without accessories	0
With standard accessories *)	1
Process outputs:	
Without	N
Current 0/4 ... 20 mA, active (source)	I *
Current 0/4 ... 20 mA, passive (sink)	J *
Voltage 0 ... 1 V	U *
Voltage 0 ... 10 V	V *
Frequency 0 ... 1 kHz	F *
Frequency 0 ... 10 kHz	G *
Digital (pulse/status) relay	R *
Digital (pulse/status) Open Collector	C *
Process inputs:	
Without	N
Current 0/4 ... 20 mA, active (source)	I *
Current 0/4 ... 20 mA, passive (sink)	J *
Voltage 0 ... 1 V	U *
PT100 temperature input	R *
Internal data logger:	
Standard 27,000 values	1
Extended 100,000 values	2
Heat quantity measurement:	
Without	0
With heat quantity measurement incl. 2 x PT100 temperature sensors	R2 1
Sound velocity measurement:	
Without	0
With sound velocity measurement incl. current output (source), digital output	I1R1 1
Wall thickness measurement:	
Without	0
With wall thickness probe NT incl. cable	1
With wall thickness probe HT incl. cable	2

Flow transmitter

Note:
* Please select the required type and number of process input/outputs. A maximum of 6 process output and 4 process input channels are available.

*) Standard accessories include transport case, mounting chains, chain repair set, power adapter and battery charging unit, measuring tape, acoustic coupling paste, operating instructions, FluxData software, RS 232 cable and adapter

Ordering example:
ADM 6725-1-P:I2R2-T:R2-1-1-0-1
Portable Ultrasonic Flowmeter FLUXUS ADM 6725, including standard accessories, 2 x 4 ... 20 mA current outputs (source), 2 x relay outputs, 2 x PT100 temperature inputs, standard data logger, with heat quantity measurement, no sound velocity measurement, with wall thickness probe NT including cable

Clamp-on flow sensors

Ordering examples:
Q3N-7-P002
Transducer for pipe diameter range (10) 25 ... 400 (1000) m, for safe area use, standard temperature -30 ... 130 °C, with Lemo connector (for portable unit), 2 m cable length
M2E-7-P003
Transducer for pipe diameter range (50) 100 ... 6500 mm, for safe area use, extended temperature range -30 ... 200 (300) °C, with Lemo connector (for portable unit), 3 cable length

Order code	**Transducer type**	x x	x -	x - x	xxx
Pipe diameter range:					
(10) 25 ... 400 (1000) mm		Q 3			
with hazardous area approval		4	N-Ex		
(50) 100 ... 6500 mm		M 2			
with hazardous area approval		4	N-Ex		
Temperature range:					
Standard -30 ... 130 °C			N		
Extended - 30 ... 200 (300) °C			E		
Version:					
For transmitters 6515/7805				5	
For transmitters 6725/7907/7807/7207				7	
Electrical connections:					
Lemo connector (for portable units)				P	
SMB-coax connector (for fixed units)				F	
No connector, flying leads				U	
Cable length:					
2 m		Q		P	002
3 m		M		P	003
10 m					010
20 m					020
50 m					050
Special (specify in metre)					___