

Ultrasonic Measurement of Water Flow

Portable, high accuracy, non-intrusive flow measurement

Features

- Non-intrusive flow measurement with high measuring accuracy for portable use
- Precise bi-directional, highly dynamic flow measurement
- Water-tight transducers (IP68) are characterised by their high robustness
- User-friendly menu navigation - the firmware is specifically adapted to the needs of the water industry

For nominal diameters of 25 to 3100 mm and for flow velocities of 0.01 to 25 m/s

- Digital signal processor (DSP) and signal processing ensure stable and reliable results even under difficult measurement conditions
- High measuring accuracy, even at low flow velocities
- Adherence to AWWA manual M36

Applications

- Water and wastewater applications
- Clean measurement process for drinking water systems
- Leak detection
- Water loss balancing
- Verification of sewage lift station performance
- Temporary monitoring of distribution and collection systems
- Verification of pump and valve performance



FLUXUS F401 H₂O



FLUXUS F401 H₂O with transducers

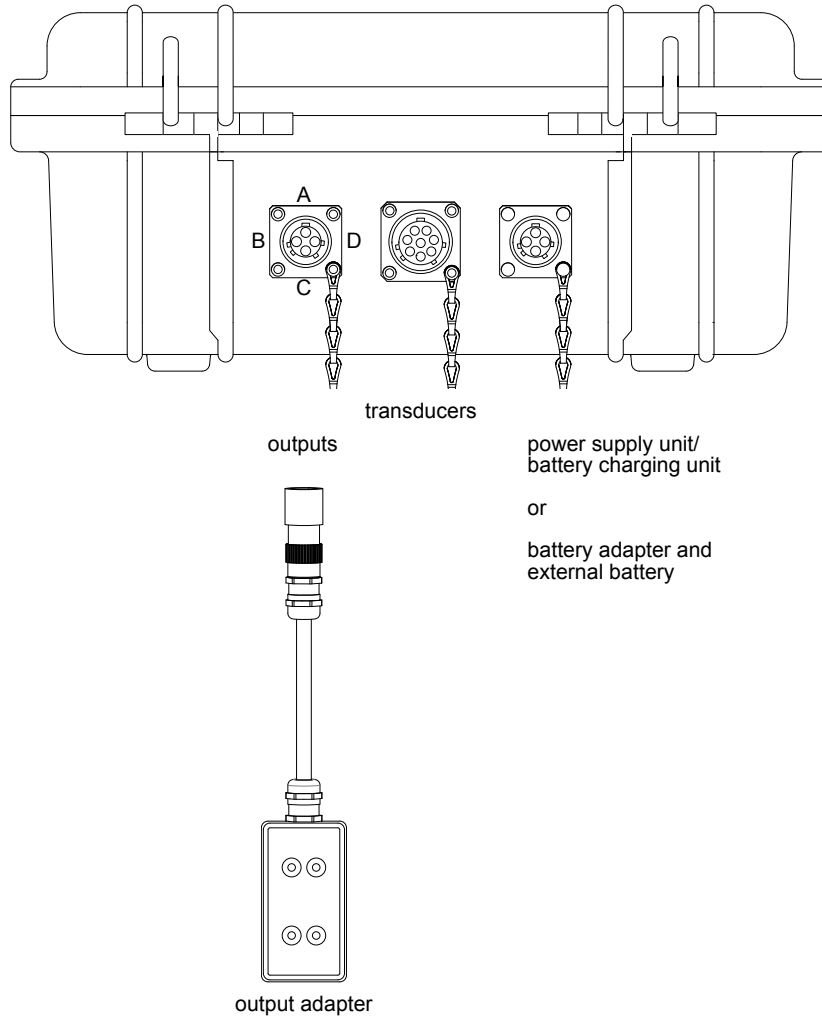
Flow Transmitter

Technical Data

FLUXUS	F401
design	portable device for water flow measurement
measurement	
measurement principle	transit time difference correlation principle
flow velocity	0.01 to 25 m/s
resolution	0.025 cm/s
repeatability	0.25 % of reading ± 0.01 m/s
medium	water and acoustically similar liquids with < 6 % gaseous or solid content by volume
accuracy ¹ - volumetric flow rate	± 2 % of reading ± 0.01 m/s
flow transmitter	
power supply	100 to 240 V/50 to 60 Hz (power supply unit), 12 V DC (socket at transmitter), integrated battery, external battery (optional) 12 V DC, 26 Ah
battery	Li-Ion operating time (without outputs and backlight): > 20 h
power consumption	< 6 W
number of flow measuring channels	1
signal attenuation	0 to 100 s, adjustable
measuring cycle	10 Hz
response time	1 s
housing material	PP
degree of protection according to IEC/EN 60529	IP67
dimensions	273 x 247 x 127 mm
weight	2.9 kg
ambient temperature	-10 to +50 °C
display	2 x 16 characters, dot matrix, backlight
menu language	English, German, French, Dutch, Spanish
measuring functions	
physical quantities	volumetric flow rate, mass flow rate, flow velocity
totalizer	volume, mass
data logger	
loggable values	all physical quantities and totalized values
capacity	> 100 000 measured values
communication	
interface	- process integration (optional, without outputs): RS485 (emitter) or Modbus RTU or BACnet MS/TP - diagnosis: RS232/USB
serial data kit (optional)	
software (all Windows™ versions)	- FluxData: download of measurement data, graphical presentation, conversion to other formats (e.g. for Excel™)
cable	RS232
adapter	RS232 - USB
accessories (optional)	
output adapter	for outputs or for process interface
outputs (optional)	
The outputs are galvanically isolated from the transmitter.	
current output	
number	1
range	0/4 to 20 mA
accuracy	0.1 % of reading ± 15 μ A
active output	$R_{ext} < 500 \Omega$
binary output	
number	1
optorelay	32 V/200 mA
binary output as alarm output - functions	limit or error
binary output as pulse output - pulse value - pulse width	0.01 to 1000 units 80 to 1000 ms

¹ for reference conditions and $v > 0.25$ m/s

Connection

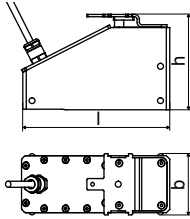
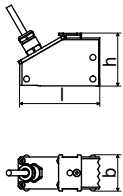


outputs

pin	outputs	RS485, Modbus, BACnet
A	binary output (+)	A (+)
B	binary output (-)	B (-)
C	current output (+)	shield
D	current output (-)	

Transducers

Technical Data

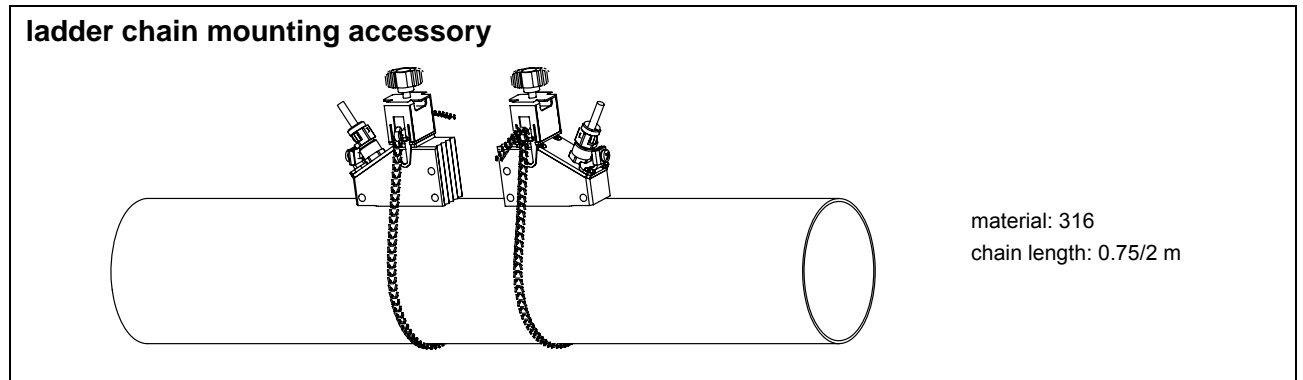
transducer frequency	MHz	0.5	2
inner pipe diameter d			
min. extended	mm	100	25
min. recommended	mm	200	50
max. recommended	mm	3100	200
pipe wall thickness			
min.	mm	-	-
max.	mm	-	-
material			
housing		PEEK with stainless steel cap 316Ti	PEEK with stainless steel cap 316Ti
contact surface		PEEK	PEEK
degree of protection according to IEC/ EN 60529		IP68 ¹	IP68 ¹
transducer cable			
type		2550	2550
length	m	12	12
dimensions			
length l	mm	130	72
width b	mm	54	32
height h	mm	83.5	46
dimensional drawing			
ambient temperature			
min.	°C	-40	-40
max.	°C	+100	+100

¹ test conditions: 3 months/2 bar (20 m)/20 °C

Transducer Cable

type		2550
ambient temperature	°C	-40 to +100
properties		longitudinal water tight
cable jacket		
material		PUR
outer diameter	mm	5.2 ±0.2
thickness	mm	0.9
color		gray
shield		x

Transducer Mounting Fixture



Coupling Materials for Transducers

type	order code	ambient temperature °C	material	transducer
coupling compound type N	990739-1	-30 to +130	mineral grease paste	
coupling pad type VT	990739-0	-10 to +200	fluoroelastomer	0.5 MHz
	990739-14			2 MHz



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