

# Technical Specification

## KUF810

### Ultrasonic flowmeter



#### Application

- The ultrasonic measuring principle is unaffected by pressure, temperature and flow profile
- Fully suitable for standard applications in the potable water, waste water and sewage
- Fully suitable for gas applications

#### Features

- Economical flow measurement solution
- Simple setup and installation
- Suitable for wide range of pipe sizes and materials
- Display flow velocity, volumetric and totalized flow
- Insensitivity to vibrations
- Bi-directional measurement

#### Your benefits

- No more piping installation – total cost reduction
- Hot tap installation - no water stoppage needed
- No pressure loss
- Modular device and operating concept resulting a higher degree of efficiency
- Diagnostic and verification capability
- Automatic data restore by ROM

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## Flow measurement

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**Measured variable**                      **Direct measured variables**  
Flow velocity (proportional to transit time difference)

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**Measuring range**  
0~15m/s

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**Measuring performance**  
1% o.R. , 0.2% Repeatability

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**Measurable pipe size**                DN80~DN2800

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## Input

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**Input signal**                              **Current input**  
2 channels 4~20mA input, 0.1% input accuracy  
(For pressure, level or temperature transducer or other analog input)

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## Output

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**Output signal**                              **Pulse/Frequency output**  
Open collector type  
Frequency output range: 1~1999Hz  
Galvanic Isolated 500V DC  
**Analog**  
0/4~20mA current output (Active)  
Galvanic Isolated 500V DC

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**Communication**                          MODBUS/RS-485 interface, galvanic isolated 500V DC

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## Display/GUI

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**Display**                                      2x16 characters LCD with back light  
**Keypad**                                      4x4 light touch keys  
**Flow rate unit**                              m<sup>3</sup>/h, gal/m, liter/s  
**Flow speed unit**                              m/s  
**Security**                                      Leveled security password to prevent non-authorized operation

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## Power supply

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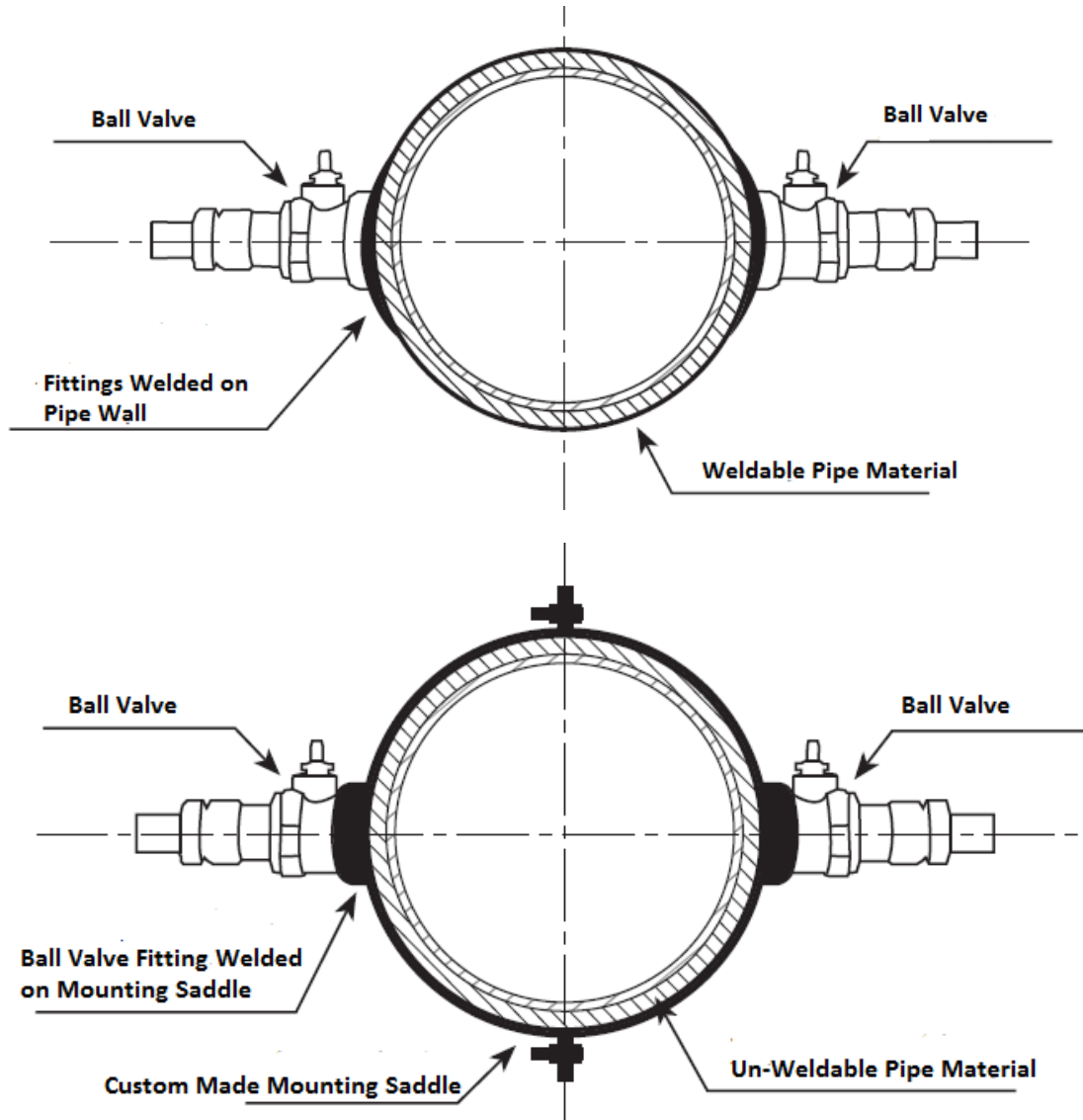
**Supply voltage**                              85~265V AC  
24 V DC  
Battery power

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**Power consumption**                      Max. Power: 2W  
**Switch-on current**  
Max. 0.3 A at 24 V DC

## Process

Temperature	-20~160°C
Pressure	1.6MPa/16 bar
Straight pipe requirement	Up stream 10D
	Downstream 5D
Connection	Weld-on fittings or factory-made mounting fixture



## Environment

Ambient temperature	Operation temperature
	-10~70°C
CE Marking	Storage temperature
	-20~85°C
CE Marking	Electrical Static Discharge
	IEC61000-4-2, 6kV direct discharge, 8kV discharge
	Radiated RF fields
	IEC 61000-4-3, 80MHz~1000MHz 10V/m, 1000MHz ~ 2700MHz:3V/m
CE Marking	Electrical fast transient/burst
	IEC 61000-4-4 1kV on cable

**Surge**

IEC 61000-4-5, 1kV on cable, 1,2/50s wave

**Conducted RF disturbances**

IEC 61000-4-6, 0.15~80MHz 3V

**Electromagnetic compatibility**

IEC 61000-4-8, 10A/m

**Mechanical Shock**

IEC 68-2-27, half sine wave, 300g, 3 axles

**Protection Level**

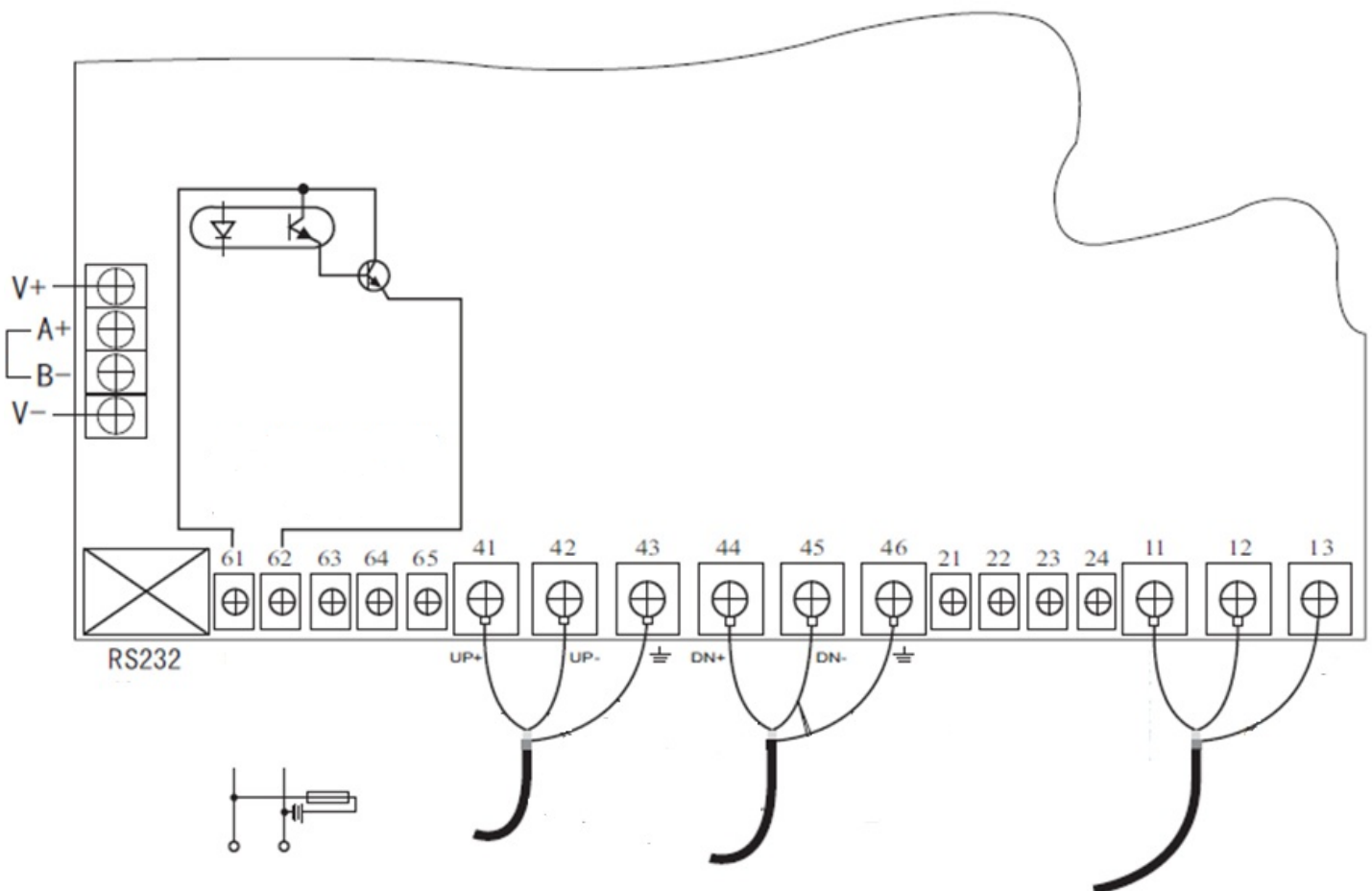
**Sensor**

IP68, under water 3m

**Transmitter**

IP67, IP68

**Electrical Connection**



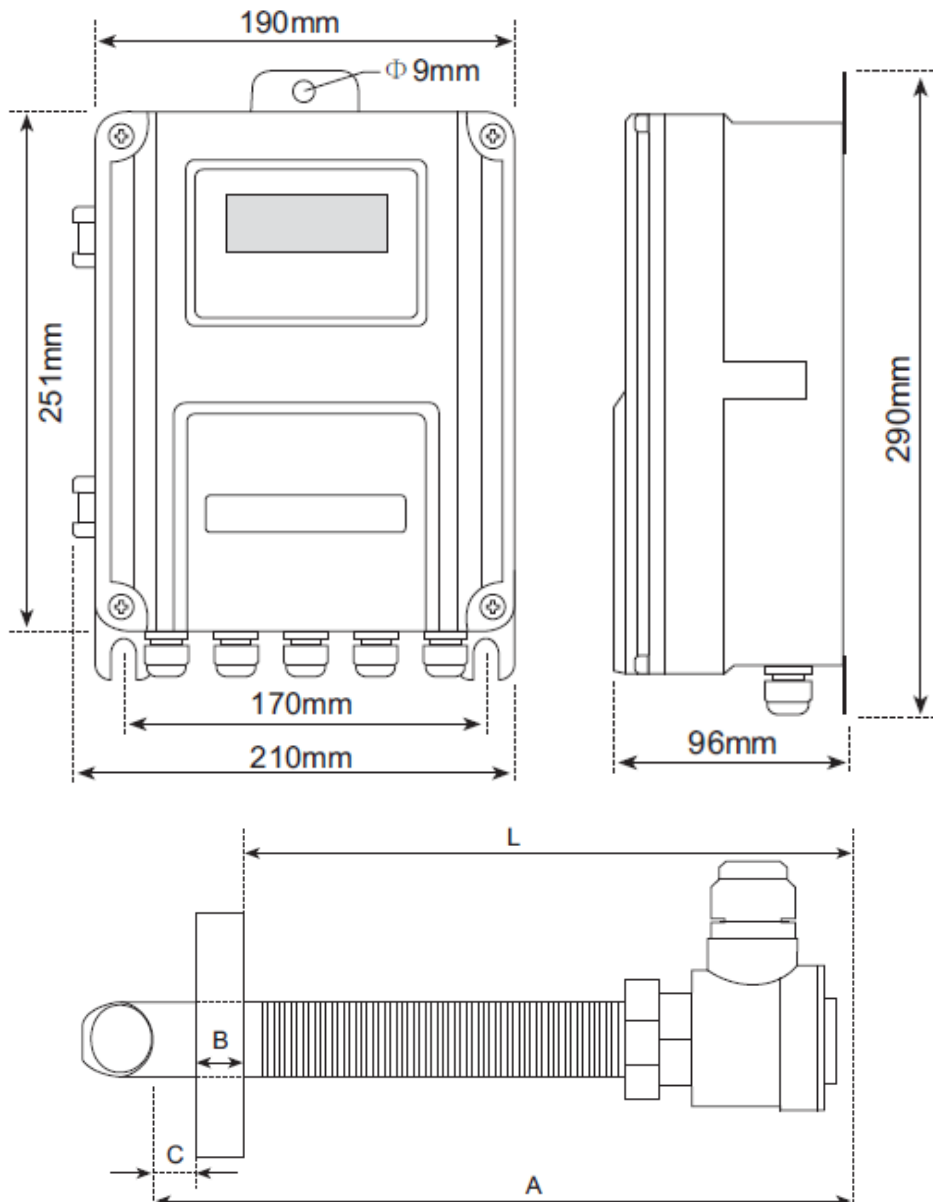
**Terminal definition**

- 11: L terminal for AC
- 12: N terminal for AC
- 13: Power Earth (PE)
- 21: 4~20mA output positive
- 22: 4~20mA output negative
- 23: 8~32V DC input + (DC power version only)
- 24: 8~32V DC input - (DC power version only)

- 41: Up stream probe input + (red)
- 42: Up stream probe input - (black)
- 43: Up stream probe signal shield
- 44: Down stream probe input + (red)
- 45: Down stream probe input - (black)
- 46: Down stream probe signal shield
- 61: Alarm open collect transistor +
- 62: Alarm open collect transistor -
- 63: 4~20mA input common
- 64: 4~20mA input #1
- 65: 4~20mA input #2

## Installation dimension and weight

### IP67 Transmitter



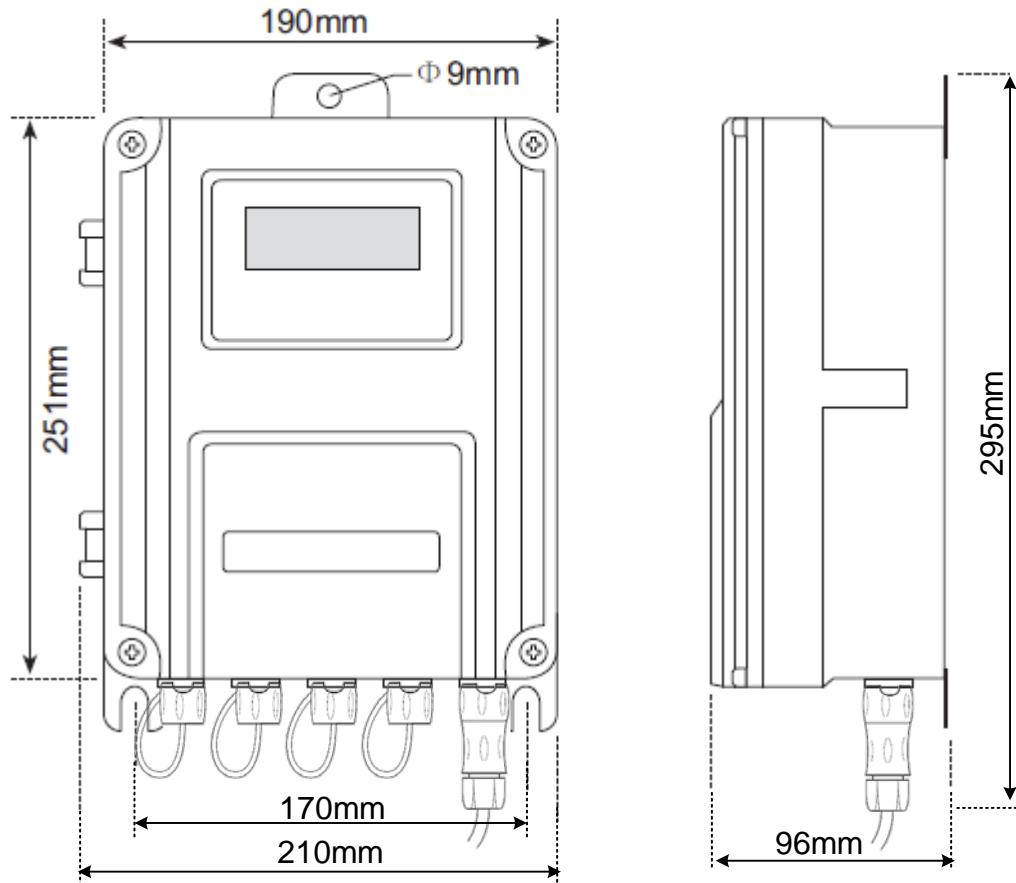
Standard sensor: A = 170 mm      Sensor for Concrete pipe: A = 310 mm

B = thickness of pipe

Note: C should be adjusted to maintain zero by controlling L

## IP68 Transmitter

Factory sealed & potted, MIL-C-26482 plug and socket.



## Materials

<b>Sensor material</b>	<b>Wetted part</b> 316L Stainless steel
	<b>Sensor body</b> 304 Stainless steel
<b>Transmitter housing</b>	Casted aluminum, power coated

## Optional accessories

<b>Power and signal cable</b>	Standard with length of 5-meter, 10 meter, 20 meter, custom length up on request
<b>Pipe mounting saddle</b>	for pipe material which is not able to weld
<b>Enhanced calibration</b>	5 points calibration by CNAS certified calibration rigs

## Order structure

KUF810 - -AAA -B -C -DDD

**Model**  
KUF810-

AAA	Size
003	3" (80mm)
004	4" (100mm)
006	6" (150mm)
...	...
112	112" (2800mm)
xxx	Special version

B	Pipe type
A	Carbon steel
B	Stainless steel
C	Casted iron
D	Glass fiber
E	PVC
F	Concrete

C	Power supply
1	85~265V AC
2	24V DC
3	Battery power

DDD	Cable length
005	5-meter cable
010	10-meter cable
020	20-meter cable
xxx	Special length

## Transmitter Only

T810	-E	-F	-G
	<b>E Power supply</b>		
	1 85 to 265 V AC		
	2 24V DC		
	3 Battery power		
		<b>F output</b>	
		s 4-20ma & Pulse	
			<b>G Communication</b>
			S Modbus RS485
			N none
			O Others (customized)

## Sensor Only

S810	-HHH	-J	-KKK
	<b>HHH Pipe size</b>		
	003 3" (80mm)		
	004 4" (100mm)		
	006 6" (150mm)		
	.... ....		
	112 112" (2800)		
	Xxx special version		
		<b>J Pipe type</b>	
		A Carbon steel	
		B Stainless steel	
		C Casted iron	
		D Glass fiber	
		E PVC	
		F concrete	
			<b>KKK Cable length</b>
			005 5-meter cable
			010 10-meter cable
			120 20-meter cable
			Xxx special length



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