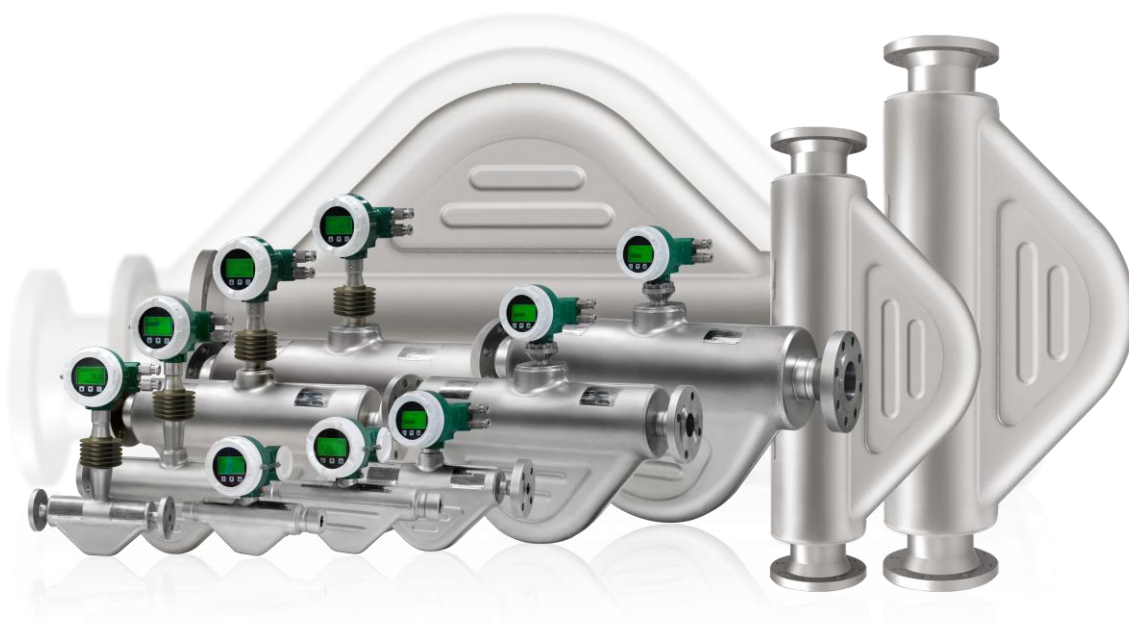




## AMF Series Coriolis Mass flowmeters Catalog



[Flowdigital.co.Ltd](http://Flowdigital.co.Ltd)

Lucent technology flowmeasurement solution.



# 1. Product Overview

## 1.1

### **Coriolis Mass Flowmeter—Leading industrial instrumentation**

Devoted to technical innovation and provide ideal solution for high pressure and cryogenic industries measuring.

Wide span ratio range.

High precision accuracy of measurement, realize industrial process control.

Modular signal converter.

Optimized hardware design is applicable to all series products.

Adopt the explosion proof and anticorrosion design, apply for a variety of environmental conditions, especially the explosion environment.



## 1.2

### Principle and Application

Coriolis mass flowmeter is developed according to the principle of coriolis, it can directly measure parameters such as mass flow-rate, density and temperature. It has been widely used in Petrochemical, Natural gas, Chemical, Pipeline transportation industries and etc. Its function is for trade settlement and process control to ensure precision reflection, optimizing production, enhanced safety and maintenance cost-saving.

## 1.

### The Technological Advantages

Measure the mass flow-rate directly, which is in the pipeline, and it would not be affected by temperature, pressure and flow rate.

High accuracy: generally 0.15%, maximum 0.05%, excellent repeatability.

Wide span ratio range, up to 100:1.

Realize measuring for mass flow-rate, volume flow-rate, density and temperature.

The stable and reliable performance.

Besides general viscosity liquids, it can also measure high viscosity and non-Newtonian liquids. It can not only measure the single phase flow but also the homogeneous multi-phase flow.







Excellent corrosion resistance, it is able to measure various common corrosive fluids.

The China classification society certificate of type approval is awarded.

## 2. Technical Overview & Specification








### 2.1

#### Coriolis Mass Flowmeter and Density Meter

Model	Code for standard product	Product photo	Work temp.	Transmitter model	Some applications			
					Petrochemical engineering & New energy	Automotive & Smelt industry	Papermaking and pulp & Environmental monitoring	Cryogenic manufacturing
AMF008	AMF008-TL4S		Cryogenic	T1000	●	●	●	●
	AMF008-TL4I		Cryogenic	T2000	●	●	●	●
AMF015	AMF015-TP25I		Normal	T2000 (T1000)	●	●	●	○
	AMF015-TP35I							
AMF020	AMF020-TP25I		Normal	T2000 (T1000)	●	●	●	○
AMF025	AMF025-TL4S		Cryogenic	T1000	●	●	●	●
	AMF025-TL4I		Cryogenic	T2000	●	●	●	●



# AMF

	AMF025-TN4I		Normal	T2000	●	●	●	○
AMF050	AMF050-TL4I (tube)		Cryogenic	T1000 (T2000)	●	●	●	●
	AMF050-TL4I		Cryogenic	T2000	●	●	●	●
	AMF050-TN4I		Normal	T2000	●	●	●	○
AMF080	AMF080-TL4I (tube)		Cryogenic	T1000 (T2000)	●	●	●	●
	AMF080-TL4I		Cryogenic	T2000	●	●	●	●
	AMF080-TN4I		Normal	T2000	●	●	●	○

Note: 1. The symbol “●” indicate conformity, on the contrary, symbol “○” indicate inconformity. The following is the same.

2. Product pictures do not represent the product itself. The contents in the parentheses means the transmitter that can be equipped.

T2000 transmitter display can be equipped according to requirement. Pictures for reference only, take practicality as standard.



## 2.1.1

### Specifications

#### General technical parameters

Accuracy	0.15%, 0.2%, 0.5%, 1.0%.....
Repeatability	0.075%、0.1%、0.25%、0.5%
Density	$\pm 0.001\text{g/cm}^3$
Temp.	$\pm 1^\circ\text{C} \pm 0.5\% \times \text{Reading (unit: }^\circ\text{C)}$
Ambient temp.	$-40^\circ\text{C} \sim +55^\circ\text{C}$
Relative humidity	$\leq 95\%$
Measuring medium	Gas, Liquid and Multi-phase flow
Housing material	304 stainless steel, ZL401(Transmitter)
Meter tube material	316L

#### Technical parameters

Model	Code for standard product	Work temp.	Medium temp.	W.P	Mounting Type	Conn. Size (Customizable)
AMF008	AMF008-TL4S	Cryogenic	$-196^\circ\text{C} \sim +70^\circ\text{C}$	$\leq 4\text{ MPa}$	Separated	HG/T20592Flange DN15 PN40 (RF)
	AMF008-TL4I	Cryogenic	$-196^\circ\text{C} \sim +70^\circ\text{C}$	$\leq 4\text{ MPa}$	Integrated	
AMF015	AMF015-TP25I	Normal	$-40^\circ\text{C} \sim +204^\circ\text{C}$	$\leq 25\text{ MPa}$	Integrated	$G \frac{3}{4}$ Internal thread
	AMF015-TP35I	Normal	$-40^\circ\text{C} \sim +204^\circ\text{C}$	$\leq 35\text{ MPa}$	Integrated	$NPT \frac{3}{4}$ Internal thread
AMF020	AMF020-TP25I	Normal	$-40^\circ\text{C} \sim +204^\circ\text{C}$	$\leq 25\text{ MPa}$	Integrated	G 1 (Internal thread)
AMF025	AMF025-TL4S	Cryogenic	$-196^\circ\text{C} \sim +70^\circ\text{C}$	$\leq 4\text{ MPa}$	Separated	HG/T20592Flange DN25 PN40 (RF)
	AMF025-TL4I	Cryogenic	$-196^\circ\text{C} \sim +70^\circ\text{C}$	$\leq 4\text{ MPa}$	Integrated	
	AMF025-TN4I	Normal	$-40^\circ\text{C} \sim +204^\circ\text{C}$	$\leq 4\text{ MPa}$	Integrated	
AMF050	AMF050-TL4I ( tube)	Cryogenic	$-196^\circ\text{C} \sim +70^\circ\text{C}$	$\leq 4\text{ MPa}$	Integrated	HG/T20592Flange DN50 PN40 (RF)



	AMF050-TL4I	Cryogenic	-196℃～+70℃	≤4 MPa	Integrated	
	AMF050-TN4I	Normal	-40℃～+204℃	≤4 MPa	Integrated	
AMF080	AMF080-TL4I (U 型 tube)	Cryogenic	-196℃～+70℃	≤4 MPa	Integrated	HG/T20592Flange DN100 PN40 (RF)
	AMF080-TL4I	Cryogenic	-196℃～+70℃	≤4 MPa	Integrated	HG/T20592Flange DN80 PN40 (RF)
	AMF080-TN4I	Normal	-40℃～+204℃	≤4 MPa	Integrated	

Note: The customized service is available if exceed the W.P in the above table.

## 2.1.2



### Transmitter & Controller

#### General technical parameters

Power voltage	12VAC~30VAC / 15VDC~40VDC	
Output variables	Transmitter	Mass and volume flow-rate, Mass and volume total, Temperature and density.
	Transmitter	Mass and volume flow-rate, Mass and volume total, Temperature and density, Side flow, Side total.
Ambient temp.	-40℃~+55℃	
Elect. Conn.	缆塞 M20×1.5	

a)

#### Technical parameters

Model	Product photo	Visible function		Output signal		
		Without display	With display	Modbus/ RS-485	Pulse	4-20mA/HART Current Loop/HART Protocol
T1000		●	○	●	●	○
T2000		●	●	●	●	● Only for with display



## 2.1.3

### Nominal Diameter & Flow-rate

Model	Nominal diameter		Code for standard product	Max. flow-rate				
	inch	mm		kg/min	Lb/min	gal/min	kg/h	l/h
AMF008	$\frac{1}{4}$	DN08	AMF008-TL4S	25	55	6.6	1,500	1,500
			AMF008-TL4I	50	110	13	3,000	3,000
AMF015	$\frac{1}{2}$	DN15	AMF015-TP25I	30	66	8	1,800	1,800
			AMF015-TP35I	30	66	8	1,800	1,800
AMF020	$\frac{3}{4}$	DN20	AMF020-TP25I	120	264	31.7	7,200	7,200
AMF025	1	DN25	AMF025-TL4S	270	595	71	16,200	16,200
			AMF025-TL4I	270	595	71	16,200	16,200
			AMF025-TN4I	270	595	71	16,200	16,200
AMF050	2	DN50	AMF050-TL4I (U tube)	1500	3304	396	90,000	90,000
			AMF050-TL4I	1600	3524	423	96,000	96,000
			AMF050-TN4I	1600	3524	423	96,000	96,000
AMF080	3	DN80	AMF080-TL4I	1800	3965	476	108,000	108,000
			AMF080-TL4I (U tube)	2000	4405	528	120,000	120,000
			AMF080-TN4I	2000	4405	528	120,000	120,000



## 2.2

### Test Performance

Mass flow- rate error	20:1 Within span ratio	$\pm 0.15\%$
	20:1 Out of span ratio	$\pm 0.15\% \pm [(\text{Zero stability divided by instantaneous flow-rate}) \times 100]\%$
Error of volume flow- rate	20:1 Within span ratio	$\pm 0.15\%$
	20:1 Out of span ratio	$\pm 0.15\% \pm [(\text{Zero stability divided by instantaneous flow-rate}) \times 100]\%$
Repeatability error	20:1 Within span ratio	$\pm 0.075\%$
	20:1 Out of span ratio	$\pm 0.075\% \pm [(\text{Zero stability divided by instantaneous flow-rate}) \times 100]\%$

Note: Zero stability value is get in laboratory, which is used to calculate the expected accuracy of sensor. Under the condition of zero flow-rate in laboratory, average flow-rate shall be in the range defined by the value of zero stability ( $0 \pm \text{zero stability}$ ), and each size and model of sensor possesses a sole value of zero stability. Statistically, 95 percent of data points used shall be in the range defined by the value of zero stability.

## 2.3

### Density Performance (only for liquid)

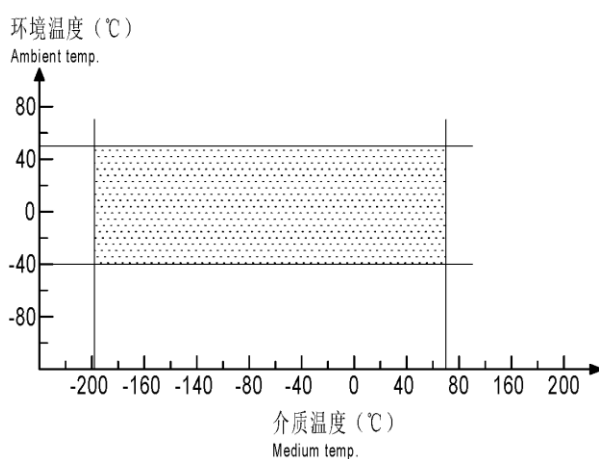
Unit	$\text{g/cm}^3$	$\text{kg/m}^3$
Error	$\pm 0.001$	$\pm 1$
Repeatability	$\pm 0.0005$	$\pm 0.5$
Flow-rate range	0.2~5	200~5000



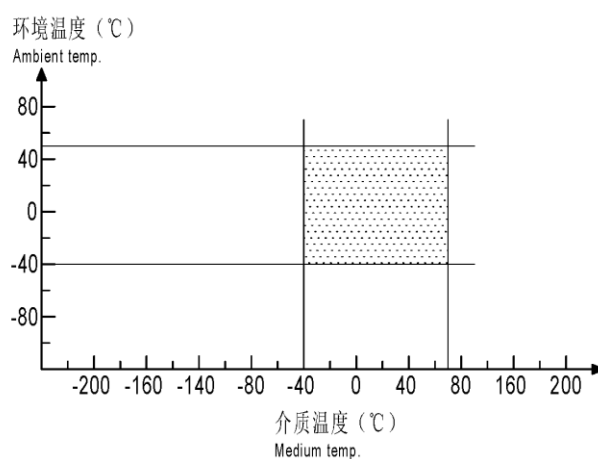
## 2.4

### Temperature Performance

Accuracy	All models	$\pm 1^{\circ}\text{C} \pm 0.5\% \times \text{Reading (unit: }^{\circ}\text{C)}$
The limited temp. range	All models	See the below charts



Cryogenic mass flowmeter temp. range



Normal temp. mass flowmeter temp. range

Medium temp. range	Cryogenic flowmeter	$-196^{\circ}\text{C} \sim +70^{\circ}\text{C}$
	Normal temp. flowmeter	$-40^{\circ}\text{C} \sim +70^{\circ}\text{C}$
Ambient temp. range	Storage	$-40^{\circ}\text{C} \sim +65^{\circ}\text{C}$
	Working	$-40^{\circ}\text{C} \sim +55^{\circ}\text{C}$

## 2.5

### Power and Wattage

Input voltage range	$12\text{VAC} \sim 30\text{VAC} / 15\text{VDC} \sim 40\text{VDC}$
Max. power consumption	5W



## 2.6

### Safety and Protection

Model	Code for standard product	Work temp.	Transmitter model	Enclosure protection	Certification of explosion-proof			
					CNEX		CCS	ATEX
					Ex d ib IIB T5 Gb	Ex d ib IIC T6 Gb		
AMF008	AMF008-TL4S		T1000	IP67	●	○	●	In progress
	AMF008-TL4I		T2000	IP67	○	●	○	○
AMF015	AMF015-TP25I、 AMF015-TP35I		T1000	IP67	●	○	○	In progress
			T2000	IP67	○	●	○	○
AMF020	AMF020-TP25I		T1000	IP67	●	○	○	In progress
			T2000	IP67	○	●	○	○
AMF025	AMF025-TL4S		T1000	IP67	●	○	●	In progress
	AMF025-TL4I		T2000	IP67	○	●	○	○
	AMF025-TN4I		T2000	IP67	○	●	○	○
AMF050	AMF050-L4I (U tube)		T1000	IP67	●	○	●	In progress
			T2000	IP67	○	●	○	○
	AMF050-TL4I		T2000	IP67	○	●	○	○
	AMF050-TN4I		T2000	IP67	○	●	○	○
AMF080	AMF080-TL4I (U tube)		T1000	IP67	●	○	●	In progress
			T2000	IP67	○	●	○	○
	AMF080-TL4I		T2000	IP67	○	●	○	○
	AMF080-TN4I		T2000	IP67	○	●	○	○

## 2.8

### Installation

## 2.8.1

### Overall Dimension for Installation

Dimension is metric unit: millimeter. \*Deviation:  $\pm 2\text{mm}$

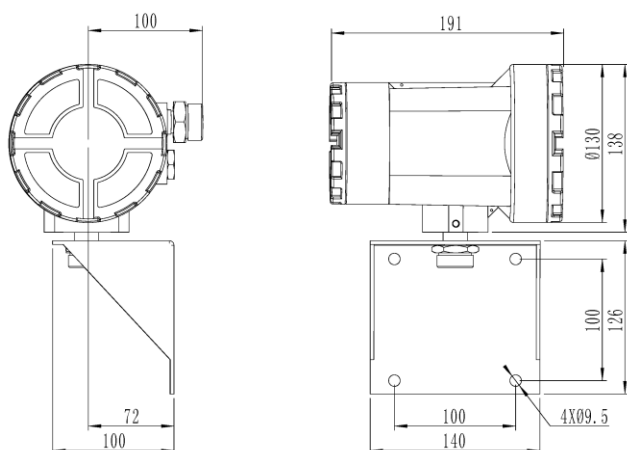


Fig. 1 The overall dimensions of T1000 transmitter and mounting holder for separated flowmeter.

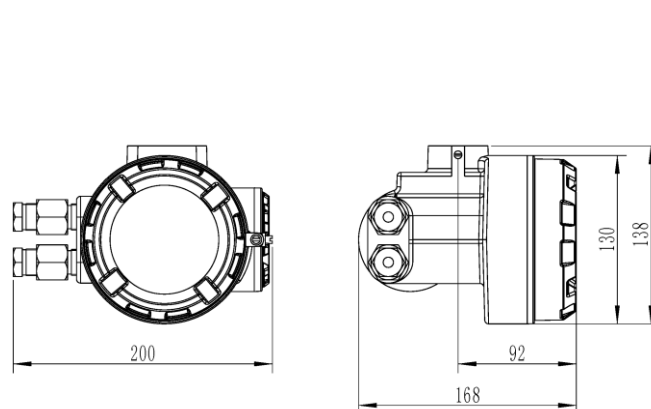


Fig. 2 The overall dimensions of T2000 transmitter.

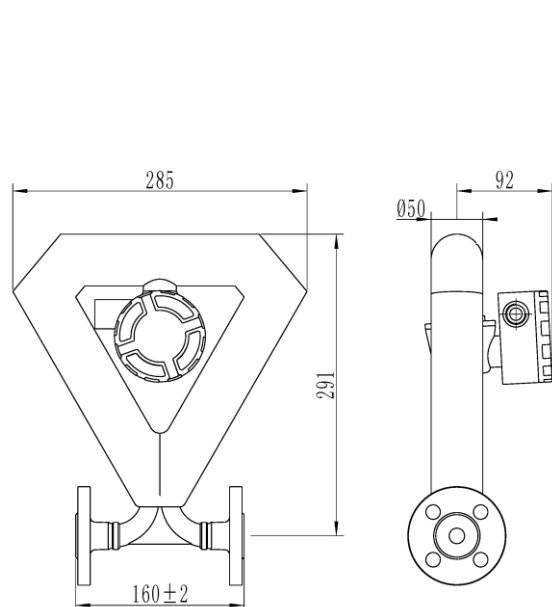


Fig. 3 The overall dimensions of AMF008-TL4S

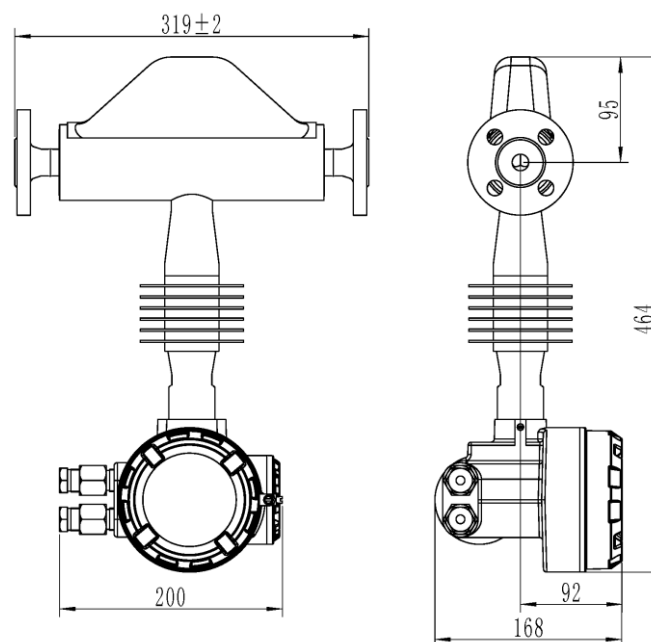


Fig. 4 The overall dimensions of AMF008-TL4I

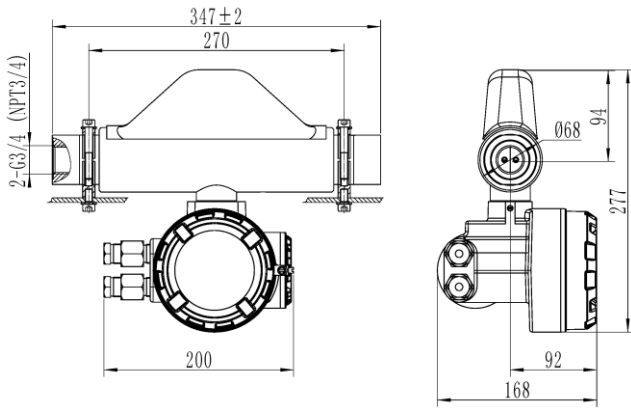


Fig. 5 The overall dimensions of AMF015-TP25I(Conn.Size:G3/4)& AMF015-TP35I(Conn.Size:NPT3/4)

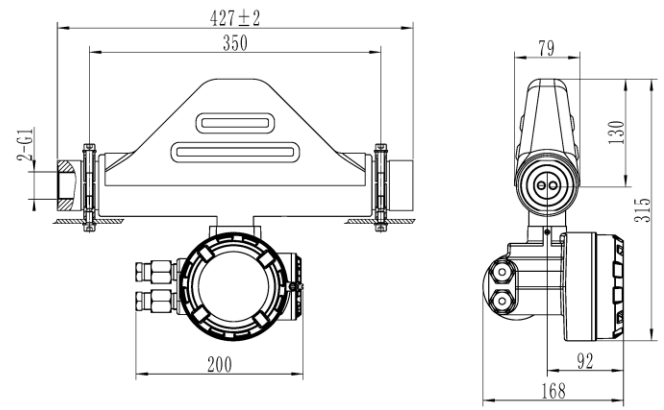


Fig. 6 The overall dimensions of AMF020-TP25I

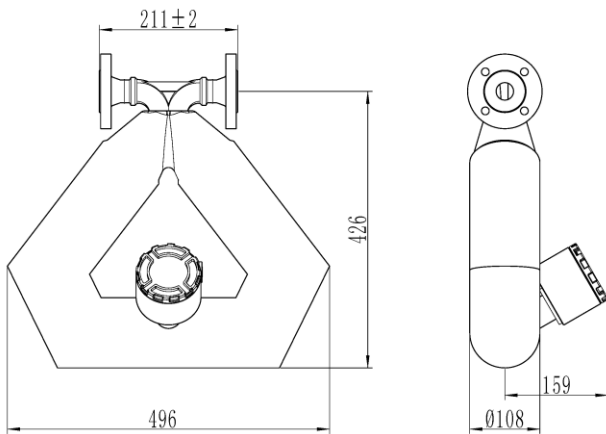


Fig. 7 The overall dimensions of AMF025-TL4S

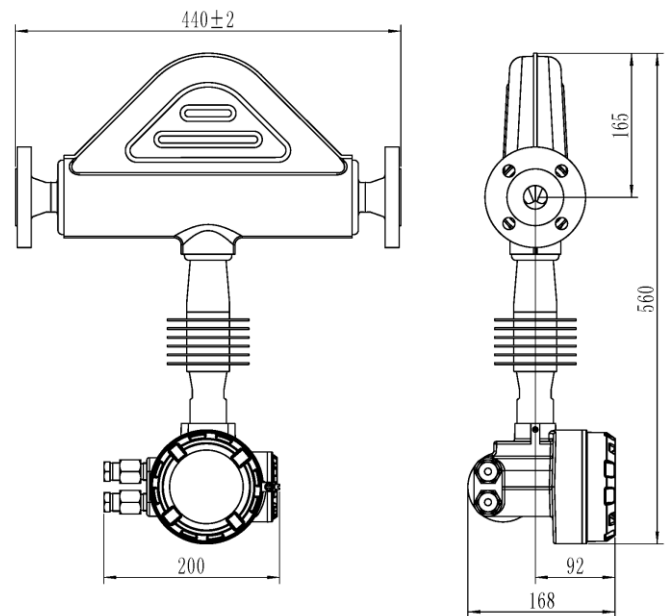


Fig. 8 The overall dimensions of AMF025-TL4I

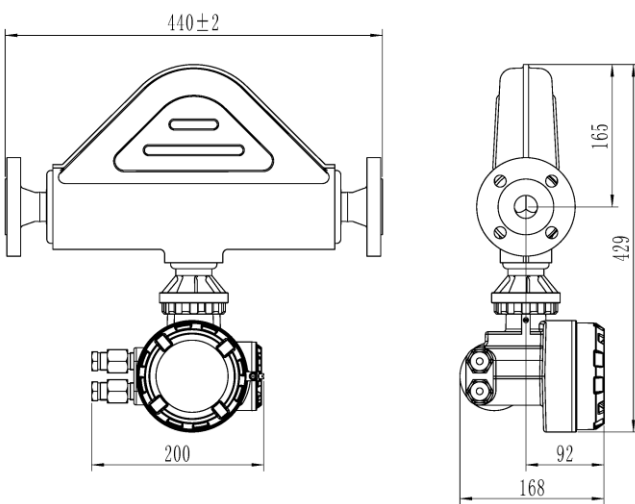


Fig. 9 The overall dimensions of AMF025-TN4I

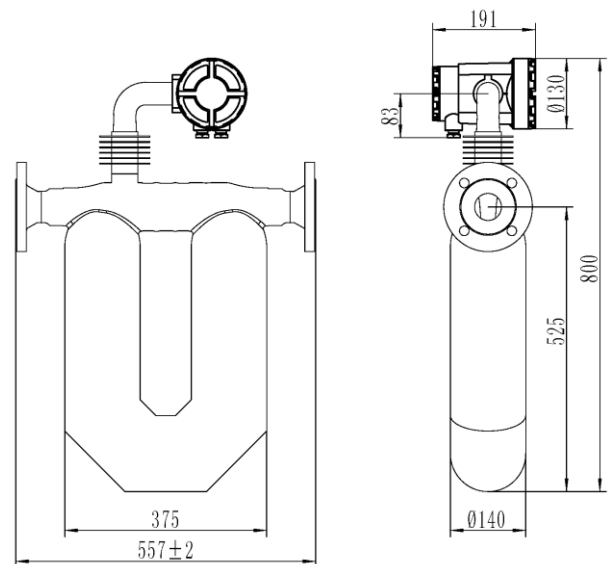


Fig. 10 The overall dimensions of AMF050-TL4I (U tube)

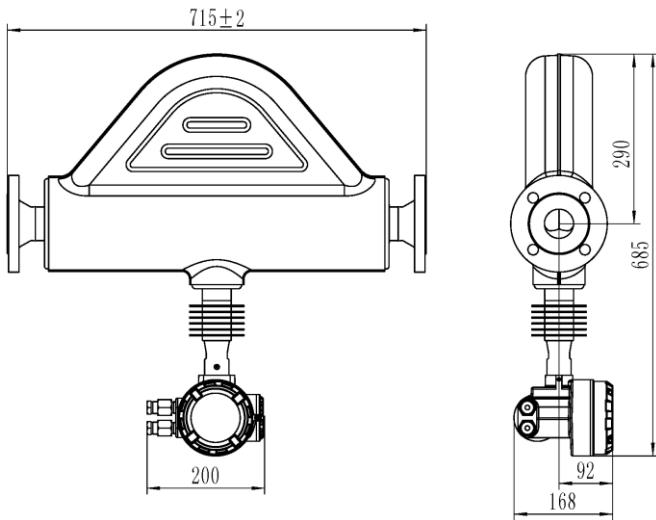


Fig. 11 The overall dimensions of AMF050-TL4I

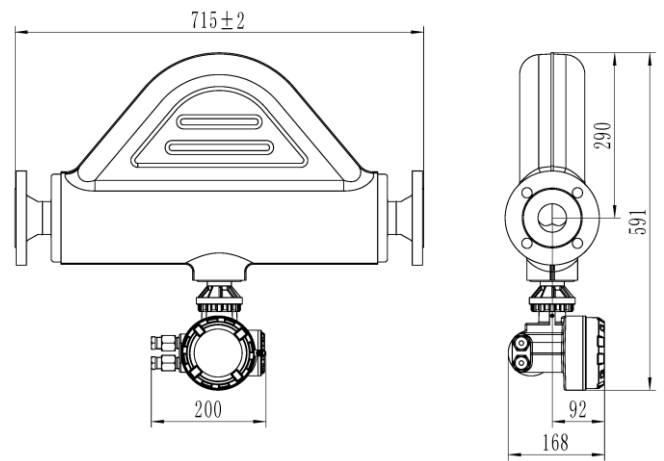


Fig. 12 The overall dimensions of AMF050-TN4I

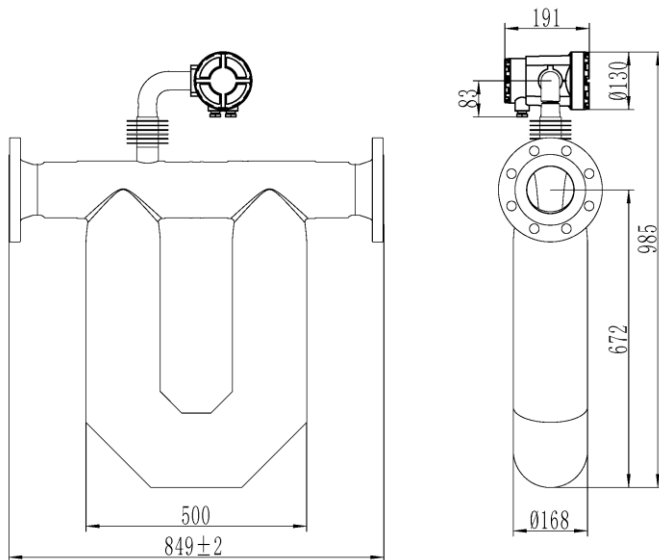


Fig. 13 The overall dimensions of AMF080-TL4I (U tube)

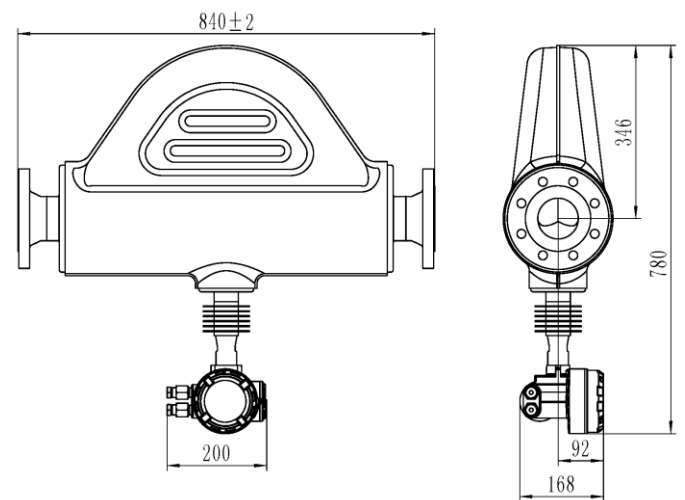


Fig. 14 The overall dimensions of AMF080-TL4I

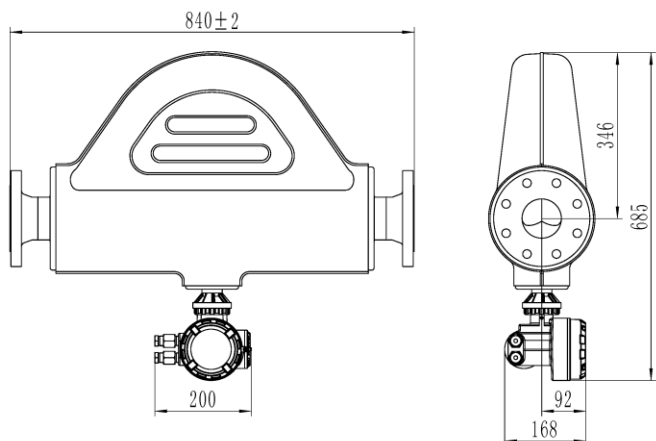


Fig. 15 The overall dimensions of AMF080-TN4I

Note: Both transmitters can rotate freely within the plane.

## Installation Methods

Warning! In vertical or horizontal installation, the flow direction of medium in pipeline shall be in accordance with the direction of indicating arrow on the flowmeter body.

Warning! If vertical mounting is required, the medium in pipeline must flow from bottom to up.

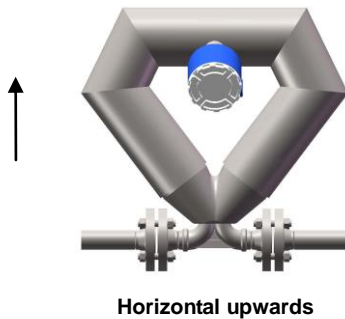
Warning! Flowmeter must be installed on steady steel sheets or flanges.

When measure gas: horizontal upwards or vertical, horizontal upwards refers to the meter tube (inside the housing) should be located upward, and upside-down is forbidden.

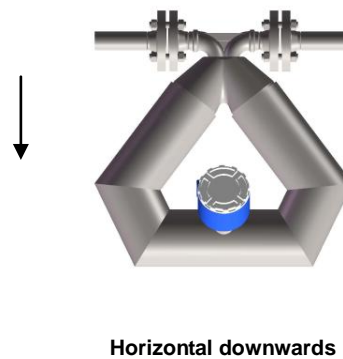
When measure liquid: horizontal downwards or vertical, horizontal downwards refers to the meter tube (inside the housing) should be located downward, and upside-down is forbidden.

Horizontal installation diagram:

Gas medium:



Liquid medium:



Note: Both transmitters can rotate freely within the plane.



### 3. 订购信息 Order Information

The code of main specifications.								
AMF	Nominal diameter							
	008	DN8	$\frac{1}{4}$ "					
	015	DN15	$\frac{1}{2}$ "					
	020	DN20	$\frac{3}{4}$ "					
	025	DN25	1"					
	050	DN50	2"					
	080	DN80	3"					
	.....							
		—	Brand					
			T	TRUFLOW				
			X	The customized service				
				Applied characteristic				
				P	High pressure			
				L	Cryogenic			
				H	High temp.			
				N	Normal			
				C	The customized service			
					Working pressure			
					04	$\leq 4\text{MPa}$		
					06	$\leq 6\text{MPa}$		
					10	$\leq 10\text{MPa}$		
					20	$\leq 20\text{MPa}$		
					25	$\leq 25\text{MPa}$		
					35	$\leq 35\text{MPa}$		
					45	$\leq 45\text{MPa}$		
						Mounting type		
					I	Integrated		
					S	Separated		
AMF		—						Complete product order code(The first part)

Note: Codes for standard product compose of this part.

For example, the code for standard product AMF015-TP25I means: AMF015model, Nominal diameter is 15mm, TRUFLOW brand, High pressure, Max. Working pressure is 25MPa, Integrated mounting. Refer to previous pages for detailed specifications information of standard product



The code of other specifications.						
Meter tube material						
M1	316L					
M2	Monel					
M3	Hastelloy					
Accuracy						
	A1	0.1 0.1%				
	A2	0.15 0.15%				
	A3	0.2 0.2%				
	A4	0.25 0.25%				
	A5	0.3 0.3%				
	A6	0.5 0.5%				
	A7	1.0 1.0%				
	A8	1.5 1.5%				
Conn. type						
		C1	Thread			
		C2	Flange			
Conn. classification and Std.						
			I	Internal thread. If inlet connection is different from outlet connection, descript as inlet (outlet), like I(E)		
			E	External thread		
			HG	Flange Std.: HG/T 20592		
			AS	Flange Std.: ASME B16.5		
Conn. Size						
				DN (X)	HG Std.: the nominal diameter of flange	
				(X) ”	ASME Std.: the nominal diameter of flange	
				WN	Welding neck flange	
				SO	Slip-on neck Flange	
				RF	RF sealing	
				MFM	MFM sealing	
				RJ	RTJ sealing	
				TG	TG sealing	
				FF	FF sealing	
				G* or M*×* or NPT*	Types and dimensions of tread	
Application condition						
					W1	Normal working condition
					W2	Special working condition
						Complete product order code(The second part)



The code of transmitter specifications and certification.						
Series of transmitter						
T	T series					
C	C series					
Type of transmitter						
	10	1000				
	20	2000				
Visible function						
		D	Multi-function display			
		X	Without display			
Output signal						
			M	Modbus/RS-485		
			P	Pulse		
			H	HART    HART    Protocol		
			L	4-20mA    4mA to 20mA    Current loop		
			J	RS-485//4-20mA    All of above		
Certification						
				Q1	CCS	
				Q2	ATEX	
				Q3	CNEX	
				Q4	CCS    ATEX	
				Q5	CCS    CNEX	
				Q6	ATEX    CNEX	
						Complete product order code(The third part)

:

Provide a complete product order code, when order product:

The code of main specifications for flowmeter.	The code of other specifications for flowmeter.	—	The code of transmitter specifications and certification.
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示例：订购代码 For example, the order code:

AMF	015	—	T	P	25	I	M1	A6	C1	I	$G\frac{3}{4}$	W1	—	T	20	D	L	Q3
-----	-----	---	---	---	----	---	----	----	----	---	----------------	----	---	---	----	---	---	----

Meaning: AMF015model, Nominal diameter is 15mm, Brand is TRUFLOW CANADA INC., High pressure, Max. Working pressure is 25MPa, Integrated mounting, Meter tube mat'l is 316L, Accuracy grade 0.5,  $G\frac{3}{4}$  inch internal thread conn. ,

Normal working condition, Equipped T2000 transmitter, With display, 4mA to 20mA current output signal, CNEX Certifica

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