



超 声 波 热 量 表 基 表

Ultrasonic Piezoelectric Transducer

一、概述(OVERVIEW)

热量表基表是用于测量及显示水流经热交换系统所释放或吸收热能的仪表所采用的配对的流量传感器及铜管所组成的承载体。也可单独用于流量的计量系统。

我公司根据建设部颁布的《中华人民共和国城镇建设行业标准》(CJ128-2007)及其他相关规程,综合考虑了各地区对热量表流量计量的不同需求,设计了满足户用型超声波热量表表体,所搭配的流量传感器具有灵敏度高、性能稳定、使用可靠及功耗低等特点。

Ultrasonic heat meter is an instrument used to detect and display the heat energy released from heat exchange system, which consists of an ultrasonic flow sensor and a brass pipe. It can also be used for an individual flow measurement system.

In accordance to the "Professional Standard on Urban Construction of The People's Republic of China" (CJ128-2007) and the relevant regulations, Audiowell designs the family used ultrasonic heat meter body on the basis of comprehensive consideration of different demand in the world market. The ultrasonic flow sensors used have characteristics in high sensitivity, stable performance, low power consumption, and so on.

二、结构组成及原理 Structure and Principle

组成结构: 由一对超声波流量传感器、一套管段组件以及铜管接头组成。

计算方法: 采用时差法, 由发射到接收的时间差及载流体口径而计算出流体流量。

Structure Composition: A pair of ultrasonic flow sensor and a brass pipe.

Calculation Method: Calculate the flow rate by detecting the water flow with time difference method. The ultrasonic wave travelling time in the liquid will be different from the transmitter to the receiver, and ultrasonic flow meter detects the liquid flow speed in the pipe, and thus calculate the liquid flow in the pipe.

三、技术参数 Parameter

1. 产品名称(Name): **HV0005-000**
2. 产品型号(Model): **RC20/V-HQ0017-006-02**
3. 传感器性能参数(Electrical specification):

项目 Item	单位 Unit	标 准 Standard	测试条件(Test condition) T=25°C
谐振频率 (Fs) Thick Resonant frequency	KHz	975 ± 30	Agilent 4294A
谐振阻抗 (R) Resonant impedance	Ω	≤ 110	Agilent 4294A
静电容量 (C ₀) Static capacitance	pF	1350 ± 20%	数字电桥 At 1000Hz/1V

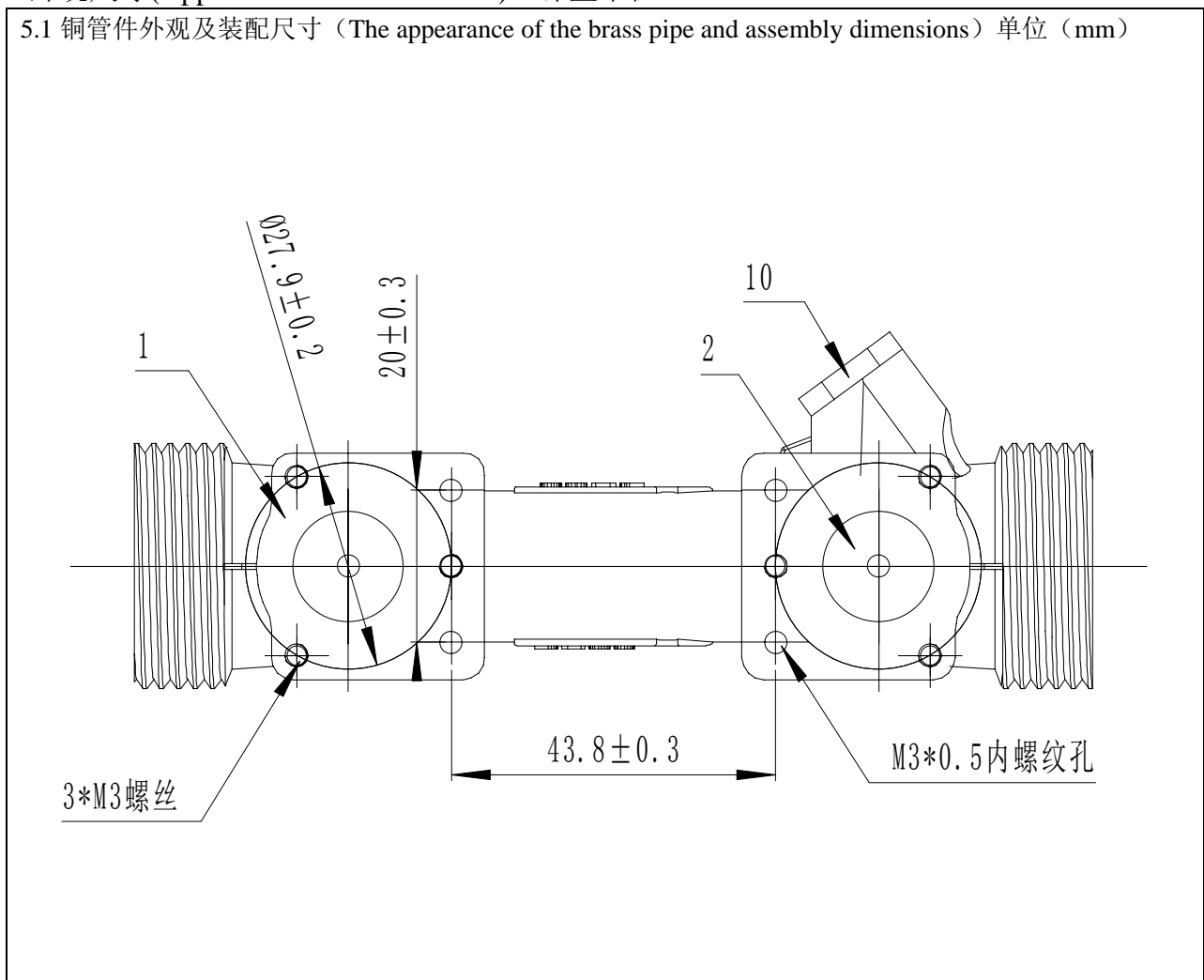
4. 基表参数 Technical Parameter

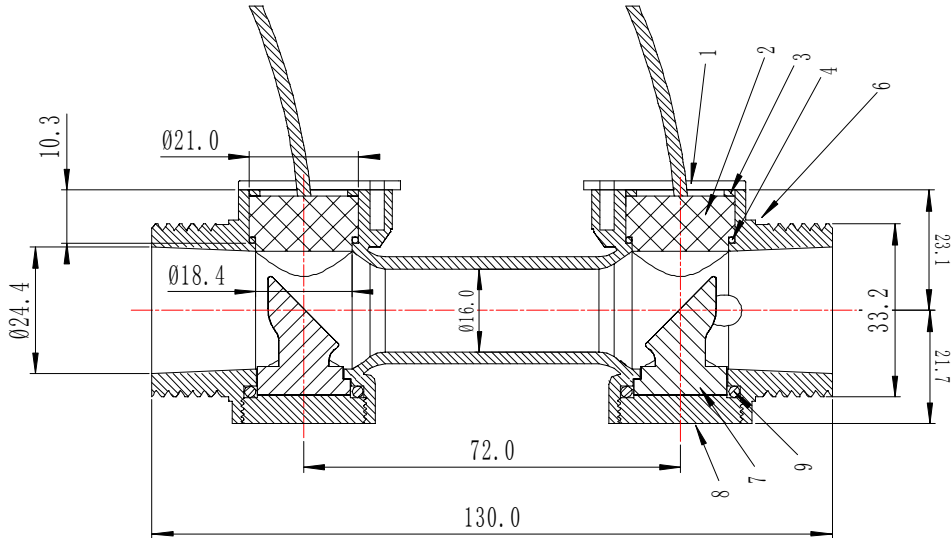
Nominal Diameter 公称口径 DN		20
Installation Length 安装长度 L		130
Connecting Thread 连接螺纹 D		G1
Permanent Flowrate 常用流量 Q (P)	m ³ /h	2.5
Max Flowrate 最大流量 Q(max)	m ³ /h	5.0
Min Flowrate 最小流量 Q(min)	m ³ /h	0.050
Ultimate Pressure 最大工作压力	MPa	1.6
Working Temperature 环境温度	°C	5~55°C
Installation Position 安装位置	进水管 Water Inlet	
Installation Mode 安装形式	管螺纹连接 Pipe threaded joint	

5. 外观尺寸(Appearance and dimensions): 计量单位 (mm)

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5.1 铜管件外观及装配尺寸 (The appearance of the brass pipe and assembly dimensions) 单位 (mm)



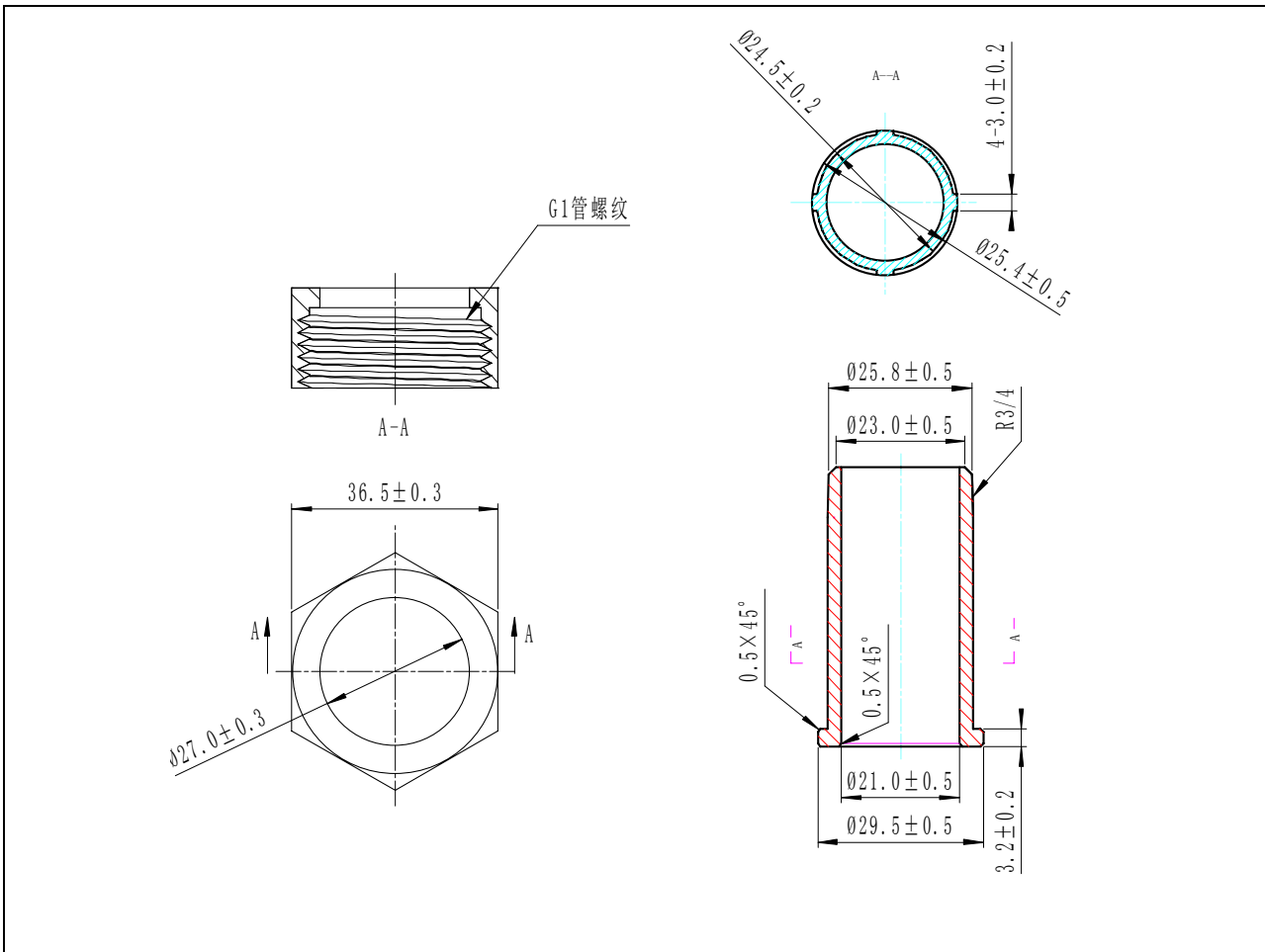


5.1.1 产品装配清单 (Product List)

NUM	名称 (Name)	数量(Quantity)
1	合金压片 (alloy slice)	1
2	传感器 (sensor)	2
3	金属垫片 (metal gasket)	2
4	传感器密封胶圈 (seal ring for sensor)	2
5	M3*6 螺钉 (M3*6 screw)	6
6	金属管 (metal pipe)	1
7	反射柱 (reflection pillar)	2
8	反射柱紧固旋钮 (fastening knob of reflection pillar)	2
9	反射柱密封胶圈 (rubber ring of reflection pillar)	2
10	温度传感器堵头 (end cap of temperature sensor)	1
11	温度传感器密封胶圈 (seal ring for temperature sensor)	1

5.2 铜接头及尺寸图 (Brass Pipe part and dimensions)





6. 表体部分包装(The package of brass pipe):

片/箱 PCS	包装盒 109(cm) Carton 109 (cm)	包装箱 128(cm) Carton 128 (cm)	毛重(Kg) Gross weight	净重(Kg) Net weight
20	16.5*10.5*8.5	57*18*20	10.7	9.2

7. 注意事项(Note):

- 1) 存储条件: $-20^\circ\text{C} \sim +80^\circ\text{C}$ 。(Storage Condition: $-20^\circ\text{C} \sim +80^\circ\text{C}$.)
- 2) 设计驱动线路时请考虑防信号干扰。(Please take Anti interference into consideration when designing driving circuit.)
- 3) 驱动电压建议小于 5Vp-p 。(Driving voltage is suggested to be lower than 5Vp-p .)
- 4) 最大耐压 1.6MPa 。(Maximum pressure endurance is 1.6MPa .)



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8. 修订记录(Revision history):

文件修订记录 File revision history			
修订时间 Revison time	修订版本 Version of revision	内部 ECR 编号 The number of ECR	修订内容 Contents of revision
2013/8/1	/	/	新建规格书 New specification

制作/日期 Accomplished by/Date		确认/日期 Approved by/Date	
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