Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

Part Number: UM0017-000

Model Number: FA02T01-UM0017Z

Overview

High Frequency Ultrasonic Sensor UM0017-000 is a non-contact detect device with high accuracy. This product is installed under the bottom of containers, so it can prevent the detected object from polluting. It features in high accuracy, high sensitivity, excellent directivity, stability and reliability, and it is waterproof. It has been widely used as a drinking water level meter.

Application

Used to detect level of normal temperature liquid and the liquid levels in drinking fountains, or other storage containers. HVAC, Sewage treatment, Food processing, Process controls and other applications where particles could be in the water or liquid.
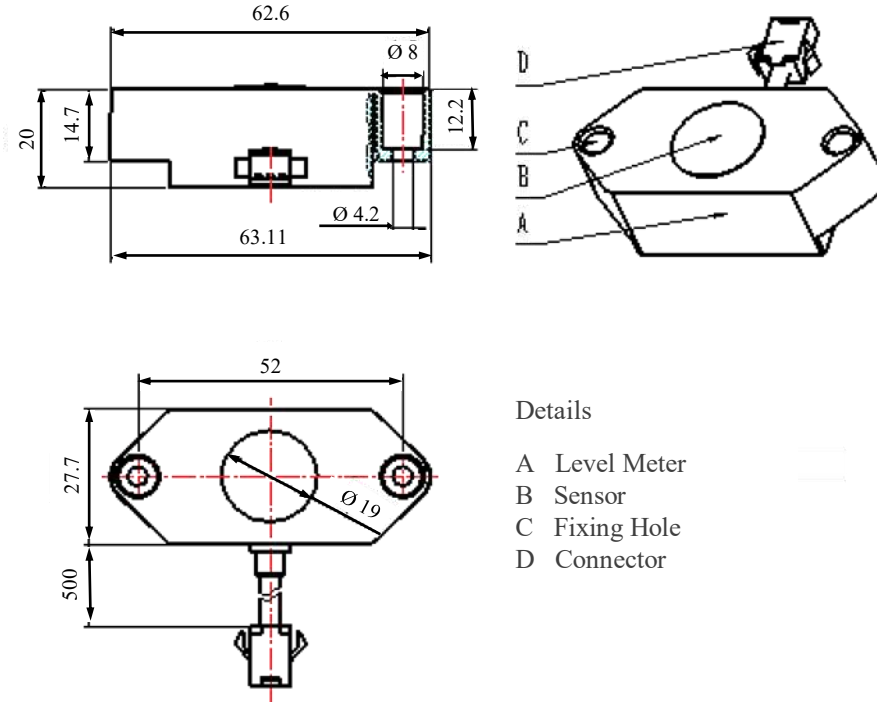
Electric Property

Measure Mode	
Measuring Principle	Application principle of ultrasonic
Typical Application	Detect liquid level of food grade: Drinking fountain, coffee maker, beverage machine
Specification	
Detect Range	20 ~ 400mm
Accuracy	±5mm 30 °C
Response Time	≤ 500ms
Output	USART Serial
Digital	Output digital value of sixteen-bit binary code (Refer to output protocols)
Rated Operate Condition	
Operation Temperature	+5 ~ +50 °C
Storage Temperature	-10 ~ +60 °C
Power Supply	
Power	DC 5 ± 0.5V
Rated Current	≤ 12mA
Design	
Material	ABS
Installation Instructions	
Screw Torque	≤ 3.5Kg
Assembling safety distance (The distance between the sensor and the container wall)	≥ 50mm
Material Requirements of the tank	Material, such as ABS, PP, PMMA, etc.

TENTATIVE RELEASE:
This specification is based on design objectives and is strictly Preliminary and subject to change. Test data may exist, but this specification is subject to change based on the results of additional testing and evaluation. Application specific specifications will be produced for approval prior to production product being released.

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Audiowell International LLC
Phone: 770.375.5597
Email: Melanie@audiowell-international.com

www.audiowell-international.com

ksl 2-2018

Audiowell International

Dimensions

62.6

Ø 8

20 14.7 12.2

63.11 Ø 4.2

D
C
B
A

52

27.7 Ø 19

500

Details

A Level Meter
B Sensor
C Fixing Hole
D Connector

Installation Drawing
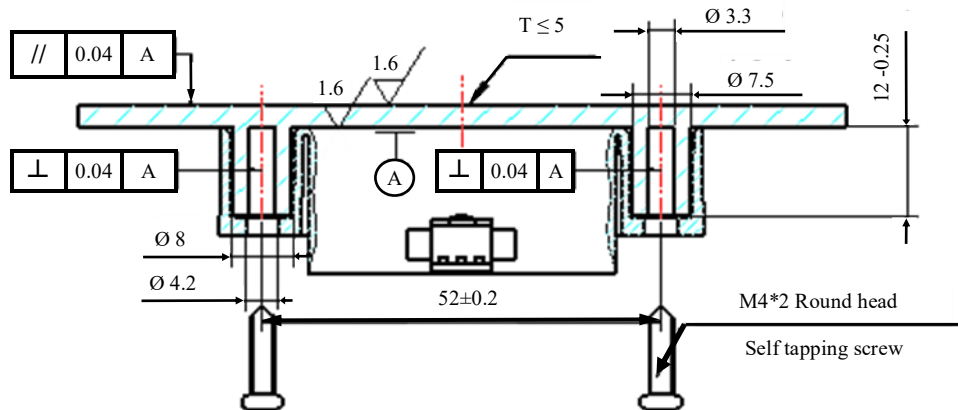
// 0.04 A

1.6 1.6

T ≤ 5

Ø 3.3

Ø 7.5

12 -0.25

⊥ 0.04 A

A ⊥ 0.04 A

Ø 8
Ø 4.2

52±0.2

M4*2 Round head

Self tapping screw

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Interface Control

Use lead output, there is a SM2.54-3Y pin on the lead. The name of the lead is shown as below:

Ø 3

SM2.54-3Y
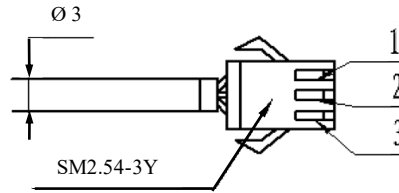
| Lead No.	Lead Color	Function of pin	Remark
1	Red	VCC	DC 5V
2	Black	GND	Grounded
3	Brown	OUTPUT	USART Serial

Output Protocols

The data of the sensor consists of boot code 0xFF (DATA1), distance signal (DATA2+DATA3) and Last Frame 0x00 (DATA4)

It transfers the low 8 bits data3 first, then transfers the high 8 bits data2.
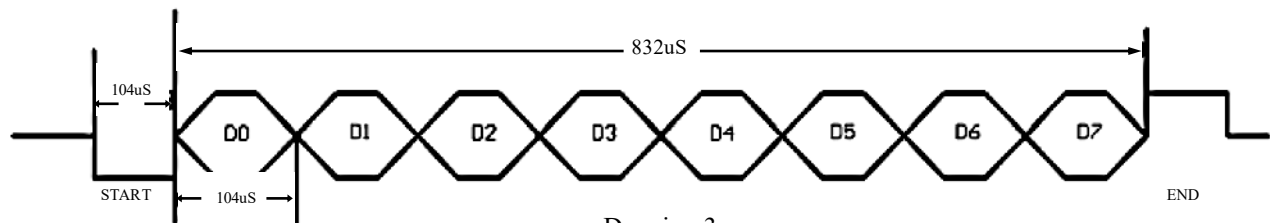
Shown as drawing 2:

Among which: DATA2 DATA3 is sixteen-bit binary code: 0000 0000 0000 0000-0000 0001 1001 0000

Corresponding decimal values: 0mm-400mm
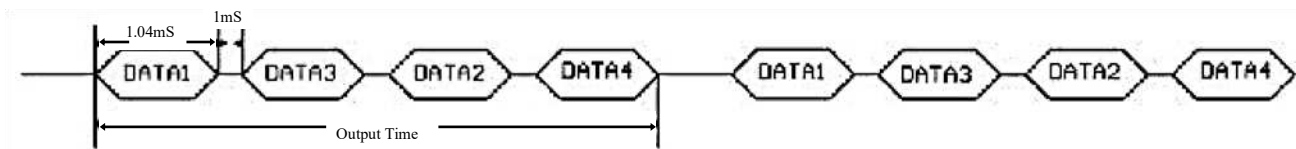
Drawing 2

The timing length of each data bit is 104us, i.e. baud rate is 9600BPS. The data output form: low level start bit + eight-digit bit + high level end bit (no parity). Shown as drawing 3

Drawing 3

Example:

The received data is: DATA1=1111 1111, DATA2=0000 0001, DATA3=0001 0100, DATA4=0000 0000

Convert to decimal value, the distance value is: 276mm

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Remarks:

1. Instruction:

Detective Distance	0-20mm	20-400mm	400-500mm	>500mm
Output Value (hexadecimal)	0	14-190	190	FFFF

2. It shows "0" when the machine is started up and there is no water. After filling water for a continuous time, if it still shows "0" or there is no value that shows up, it can be caused by the failure of detector. The user should immediately be alarmed and take corresponding action, this product has no self-check function, the user can adjust it according to his request when designs the product.

3. This product calculates the distance based on the conditions of environment temperature of 30 °C, relative humidity 50%, it can meet the accuracy to be ±5mm in the full measurement range. As ultrasonic sensor is sensitive to temperature, to guarantee the accuracy in temperature usage range, it has to add temperature compensation accordingly. Reference the temperature compensation table as below

Temperature Compensation Table

Temperature (°C)	Coefficient
5	0.945
10	0.959
15	0.971
20	0.982
25	0.992
30	1
35	1.007
40	1.013
45	1.018
50	1.022
Eventually distance =Output Data * Coefficient	

Revision History:

Version	Date (MM/DD/YY)	DWN	Statement
A1.0	10/6/2012	Chen Wei Jian	Final compilation, amended dimensions and installation instructions

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